ETHICON

RN 101649804

a *Johnson & Johnson* company
3348 Pulliam Street
San Angelo, TX 76905-4403

November 17, 2003

To: Mr. Sam Madison
Emissions Evaluator
Texas Commission on Environmental Quality
3300 North A Street
Building 4, Suit 107
Midland, TX 79707

Subject: Submittal of source test reports for Ethylene Oxide Scrubbers and Catalytic Oxidizers

Reference: FOP Permit No. O-02452
NSR Permit No. 20178
Account No. TG-0079-G

Dear Mr. Madison:

During September 15 through 19, 2003, Professional Environmental Services, Inc. (PES) conducted emissions testing for the scrubbers and catalytic oxidizers at the plant located in San Angelo, Texas. This testing was performed to satisfy the requirements of Title 30 Texas Administrative Code chapter 122 and the FOP. The attached reports indicate that all units tested were over 99% efficient, as required by the Clean Air Act.

Ethicon appreciates your active participation in pre-planning the tests and guiding us in making the testing process successful. Attached are two copies of the final report from PES Inc. It is my understanding that after completing your review, you will forward one copy of the report with your remarks to the TCEQ Region 8 office in San Angelo, Texas. I also understand that EPA Region 6 does not need a copy, Ethicon may voluntarily send them a copy.

As you review the reports and have any questions, please contact me at (325) 482-5419, Harry Johantgen at (325) 482-5710 or Dennis Becvar of PES at (626) 962-3278.

It was a pleasure working with you.

Sincerely,

Tahseen Khan

Attachments
CC: Marcia Brown
Mason West
Harry Johantgen

My doc/noncfc- Stack test result to Sam Madison TCEQ.doc TK/Nov.17'03
UPS Tracking: 1Z 771 532 0143014405

SOURCE TEST REPORT:

EMISSIONS TESTING OF THE EAST AND WEST ETO ABATORS AND EAST AND WEST FLUID BED SCRUBBERS

Conducted On:

September 15-18, 2003

Conducted At:

ETHICON, Inc.
3348 Pulliam Street
San Angelo, Texas 76905

PES Project No. 1070.001

Conducted By:

PROFESSIONAL ENVIRONMENTAL SERVICES, INC.
5027 Irwindale Avenue, Suite 100
Irwindale, California 91706
Telephone: 626-962-3278

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SOURCE TEST REPORT:

EMISSIONS TESTING OF THE EAST AND WEST ETO ABATORS AND EAST AND WEST FLUID BED SCRUBBERS

EXECUTIVE SUMMARY

State and Federal Operating permits limit ethylene oxide (EtO) emissions from the sterilization operations at Ethicon's San Angelo, Texas, facility. The emissions from the EtO sterilization processes are controlled by catalytic oxidizers (abators) and fluid bed scrubbers. During the week of September 15, 2003, Professional Environmental Services, Inc., Irwindale, California, conducted source emissions testing of the two abators and two scrubbers that are used to reduce EtO emissions to the atmosphere. For the determination of destruction efficiency by each abator, pure EtO was injected from a compressed gas cylinder connected to the inlet duct. Samples were collected simultaneously at the inlet and outlet of each abator and analyzed by a gas chromatograph operated on site. The inlet concentrations averaged 137 and 160 parts per million by volume, dry basis (ppmvd), for the west and east abators respectively; and, the outlet concentrations were less than 0.1 ppmvd, yielding an overall efficiency of >99% for both abators. Due to safety considerations, the inlet concentration of EtO to the scrubbers could not be sampled directly; therefore, the destruction efficiency of the scrubbers was determined by monitoring process conditions to determine the inlet concentrations, and by direct sampling of the exhaust of the scrubber during the period when EtO was evacuated from a loaded sterilizer to its scrubber. The inlet EtO to each scrubber averaged 30.4 pounds of EtO, and at the outlet the emissions averaged less than 0.0013 pounds per evacuation cycle, yielding an overall efficiency of >99% for each scrubber. To satisfy the requirements of the operating permit granted by the US EPA, one test run was conducted without product in the chamber. This test also yielded a control efficiency of greater than 99% with an inlet loading of 30.3 pounds of EtO.

On Thursday, September 18, 2003, Mr. Sam Madison of the Texas Commission on Environmental Quality (TCEQ) visited the site and was given a debriefing of the source testing accomplished to date and a tour of the facility.

CONTACT INFORMATION

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Agency:	**Texas Commission on Environmental Quality** Compliance and Enforcement Division Midland Regional Office 3300 North A Street Building 4, Suite 107 Midland, TX 79707
Contact:	Mr. Sam Madison, Emissions Evaluator Telephone: 432-570-1359 Fax: 432-570-4795 email: smadison@tnrcc.state.tx.us
Permit Information:	TCEQ Permit No. O-02452 USEPA Tile V Permit (40 CFR, Part 63, Subpart O) Account Number: TG-0079-G
Source Test Contractor:	**Professional Environmental Services, Inc.** 5027 Irwindale Avenue, Suite 100 Irwindale, CA 91706
Contact:	Mr. Dennis Becvar, Senior Project Manager Telephone: 626-962-3278 Fax: 626-962-5905 email: dbecvar@mpowercom.net

SOURCE TEST REPORT:

EMISSIONS TESTING OF THE EAST AND WEST ETO ABATORS AND EAST AND WEST FLUID BED SCRUBBERS

SECTION 1
INTRODUCTION

1.1 SUMMARY OF SOURCE TESTING PROGRAM

During the week of September 15, 2003, Professional Environmental Services, Inc. (PES), Irwindale, California conducted source emissions testing on the non-CFC ethylene oxide (EtO) sterilization operations at Ethicon's San Angelo, Texas, facility. This facility manufactures various medical sutures and other products used by the medical profession. Texas Commission on Environmental Quality (TCEQ) has issued a Federal Operating Permit (No. O-02452), under the Federal Clean Air Act as required by Title III of the Clean Air Act Amendments of 1990, 40 CFR, Part 63, Subpart O. A Texas New Source Review (NSR) Permit No. 20178, is also in force under the Texas Clean Air Act section 382.0511(b).

Emissions to the atmosphere from the EtO sterilization operations are controlled by two fluid scrubbers and two Donaldson EtO catalytic oxidation devices (EtO abators). The non-CFC operations incorporate six automated sterilizers which use 100 percent EtO as the sterilant. The purpose of this testing program was to determine the control efficiency of the east and west Donaldson EtO abators and the east and west fluid bed scrubbers.

Samples were collected into Tedlar bags simultaneously at the inlet and outlet of each EtO abator. Since the concentrations of EtO at the inlet vary depending on the evacuation cycles of the various sterilizers, the inlet concentrations were increased by injecting EtO directly into the inlet duct from a compressed gas cylinder containing 100% EtO. The concentration of EtO at the inlet was varied by partially opening the valve on the cylinder of pure gas and adjusting a second valve until an in-line rotometer indicated a constant flow. The EtO destruction efficiency of each abator was determined by immediately analyzing samples collected into evacuated Tedlar bags with a gas chromatograph (GC) operated on site.

The second component to this testing program was to determine the efficiency of the fluid bed scrubbers. Samples of EtO at the scrubber exhaust were collected into Tedlar bags during the entire evacuation cycle of a sterilization chamber. The amount of EtO at the inlet of the scrubbers was determined by using data from various process instrumentation and mass balance calculations. Three test runs were conducted on the scrubbers during sterilization of product in the chamber; and as required by US EPA, one test run was conducted while an empty chamber was charged with EtO evacuated to the scrubber.

The sampling and analytical procedures used for this testing program are based on standard procedures established by EPA and TCEQ.

1.2 SCHEDULE FOR TESTING PROGRAM

The following table summarizes the various tasks and schedule for this testing program:

Date	Time	Description
Sept 15, 2003	0730-0900	facility security/safety training
	0930-noon	test equipment set-up and connection of the cylinder of EtO to the west abator inlet duct
	1330-1500	pre-test calibration of GC
	1530-1730	sample collection/analysis west abator (inlet/outlet)
	1730-1815	post-test calibration of GC
Sept 16, 2003	0830-0930	pre-test calibration of GC
	0930-1000	sampling equipment set-up and connection of EtO cylinder to the east abator inlet duct
	1000-1130	sample collection/analysis east abator (inlet/outlet)
	1130-1215	post-test calibration of GC
	1215-1330	sampling of Sterilizer O – East Scrubber
	1330-1415	sample analysis
	1415-1530	post-test calibration
	1950-2047	sampling of Sterilizer T – West Scrubber
	2047-2145	sample analysis
	2145-2200	post-test calibration
Sept 17, 2003	0043-0031	sampling of Sterilizer U – West Scrubber (aborted test-wrong scrubber column)
	0045-0030	sample analysis
		no post test calibration
	0800-0830	pre-test calibration
	0905-1035	sampling of Sterilizer T – West Scrubber (empty chamber)
	1035-1115	post-test calibration
	1337-1417	sampling of Sterilizer U – West Scrubber
	1430-1500	sample analysis
	1500-1645	post-test calibration
Sept 18, 2003	1100-1400	meeting with Sam Madison-TCEQ
	1400-1600	equipment tear-down and packing

SECTION 2
SOURCE DESCRIPTION

2.1 PROCESS DESCRIPTION

The following is a brief overview of the non-CFC operations at Ethicon. A detailed description will not be provided herein due to the possibility of releasing proprietary information.

In the non-CFC facility Ethicon operates six 100-percent EtO sterilizers and two fluid bed scrubbers. The identification of the sterilizers and respective scrubbers are as follows:

Vessel	Sterilization Process	Scrubber
Sterilizer O	Primary	east
Sterilizer M	Secondary	east
Sterilizer N	Secondary	east
Sterilizer T	Primary	west
Sterilizer U	Primary	west
Sterilizer V	Secondary	west

A normal sterilization cycle begins when the medical products are loaded into the sterilization chamber. The chamber door is closed and hermetically sealed. Air is pumped from the chamber by a vacuum pump; the vacuum pulled depends on the type of product and packaging. Steam is injected to heat and humidify the product while vacuum is maintained. Next, nitrogen is injected to dilute any remaining oxygen in the chamber. When the nitrogen charge is completed the oxygen concentration is measured to ensure that it is within a safe limit before the EtO is introduced. Once it is determined that the oxygen limits have been satisfied the chamber is charged with pure EtO from the EtO Dispensing Facility (EDF) through a make-up tank. The chamber is pressurized with a combination of EtO and Nitrogen to a pressure of 90 kPa or greater. At the completion of the exposure, a vacuum pump exhausts the EtO to one of two scrubber systems. Once the sterilization cycle is completed, the product is transferred from the chamber into either a vacuum dryer or aeration vessel, depending on the type of packaging. Product from the primary sterilization process is moved to a vacuum dryer where a vacuum is pulled on the product for approximately 12 hours to draw out any residual EtO from the packaging. Product from the secondary sterilization process is moved to an aeration room for approximately 8 hours to allow sufficient time for EtO to off-gas. The vacuum dryer and aeration chamber are both maintained under negative pressure and exhausted to the Donaldson abators.

2.2 CONTROL EQUIPMENT DESCRIPTION

2.2.1 Abators

Emissions from the vacuum dryers and aeration rooms are exhausted through two Donaldson abators. The EtO gas stream is heated by a heat exchanger and introduced to the

FIGURE 2.1
EQUIPMENT DIAGRAM OF AN ABATOR

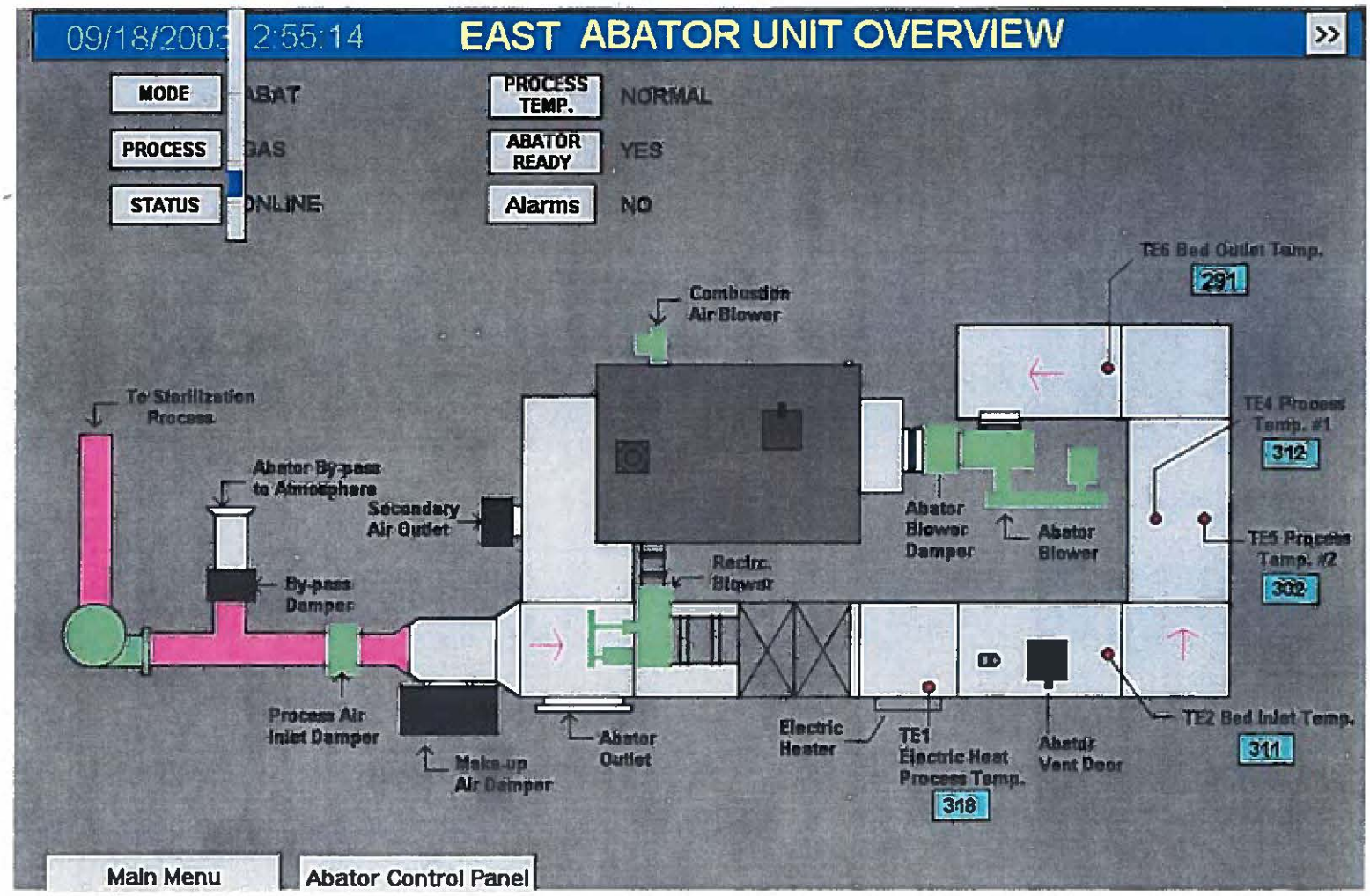
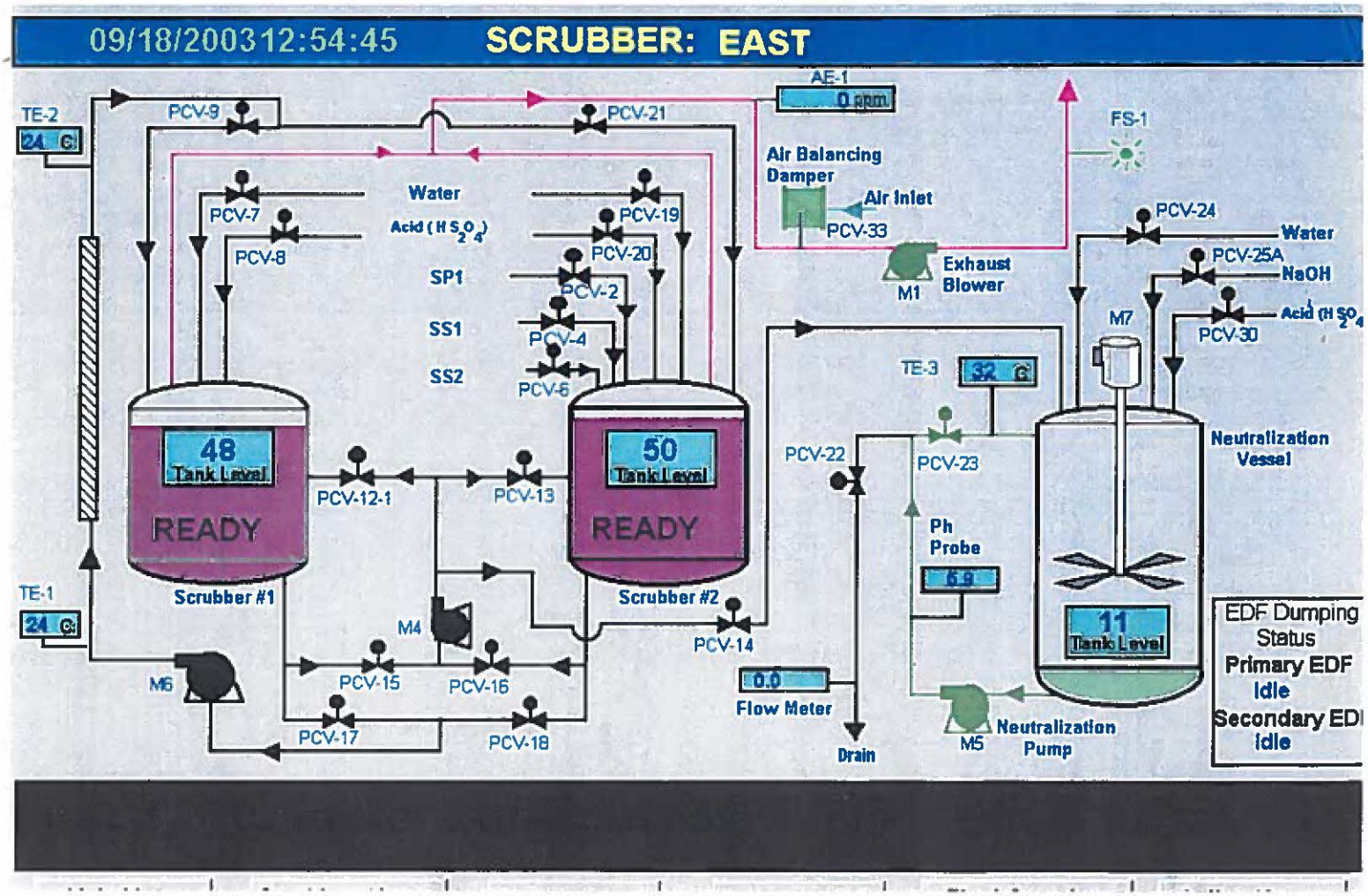


FIGURE 2.2
EQUIPMENT DIAGRAM OF A SCRUBBER



catalyst bed within the Abator. Additional heating of the gas stream is by natural gas fired burners or, as alternate, electric heat. The heated gas stream is then passed through a catalyst bed. Oxygen and EtO migrate through the catalyst bed by diffusion and are absorbed into the pores of the catalyst. Oxidation of the EtO takes place at these sites converting the EtO to carbon dioxide and water vapor. The reaction products are desorbed from the catalyst pores and passed through a heat exchanger for heat recovery, and then to the atmosphere.

The oxidation temperature at the outlet of the catalyst beds is continuously monitored and recorded to ensure that the manufacturer's recommended minimal operating temperature range of 270°F - 280°F is maintained and complies with the State's Permit requirement. Continuous monitoring as defined by the permit, requires that a reading is to be taken every fifteen minutes. The abators are required to reduce EtO emissions to the atmosphere by at least 99%. These requirements are in both the Federal Operating Permit and the New Source Review permit.

While 40 CFR, Part 63, Subpart O, does not require an initial performance test for the abators, Section 63.362(b)(4) requires facilities to comply with at least one work practice standard. Ethicon standard practice is to conduct an annual performance test on both abators. If the efficiency is less than 99%, the catalyst is removed and sent to the manufacturer for regeneration as soon as practicable, but no later than 180 days after the test. Included in this testing program was the determination to verify that each abator has an efficiency of at least 99%.

2.2.2 Scrubbers

The plant operates two identical acid-water scrubber systems to control EtO emissions from the sterilization chambers. The scrubbers are designated as East and West and were manufactured by Damas, and are Model 1000-2-6-HE-SR units. Each unit is comprised of two tanks. Scrubber tanks designated as A and B (or SC1 and SC2) are for the East Scrubber; and, tanks C and D (or SC1 and SC2) are for the West Scrubber. Both sets of scrubbers are configured identical to one another, similar dimensions, and operating parameters. Each of the four tanks contains three bladders. Each scrubber has one tank continuously on-line and one tank on standby status. For both scrubbers, only one column is on-line at a time with the alternate column serving as backup when it is determined that maintenance is required on the column that is in service.

Each sterilizer chamber is charged through a make-up tank. As EtO is absorbed into the product, the make-up tank compensates for pressure drop occurring due to absorption by the product. EtO is delivered to the chamber from the make-up tank until the pressure inside the chamber stabilizes. At the conclusion of the sterilization cycle, the EtO in the chamber is delivered through the scrubber during a tank evacuation cycle.

Process flow diagrams of the various sterilization operations, scrubbers, and the abator systems are presented are Figures 2.3 through 2.4.

FIGURE 2.3
PROCESS FLOW DIAGRAM FOR
PRIMARY STERILIZATION ENVIRONMENTAL OPERATIONS

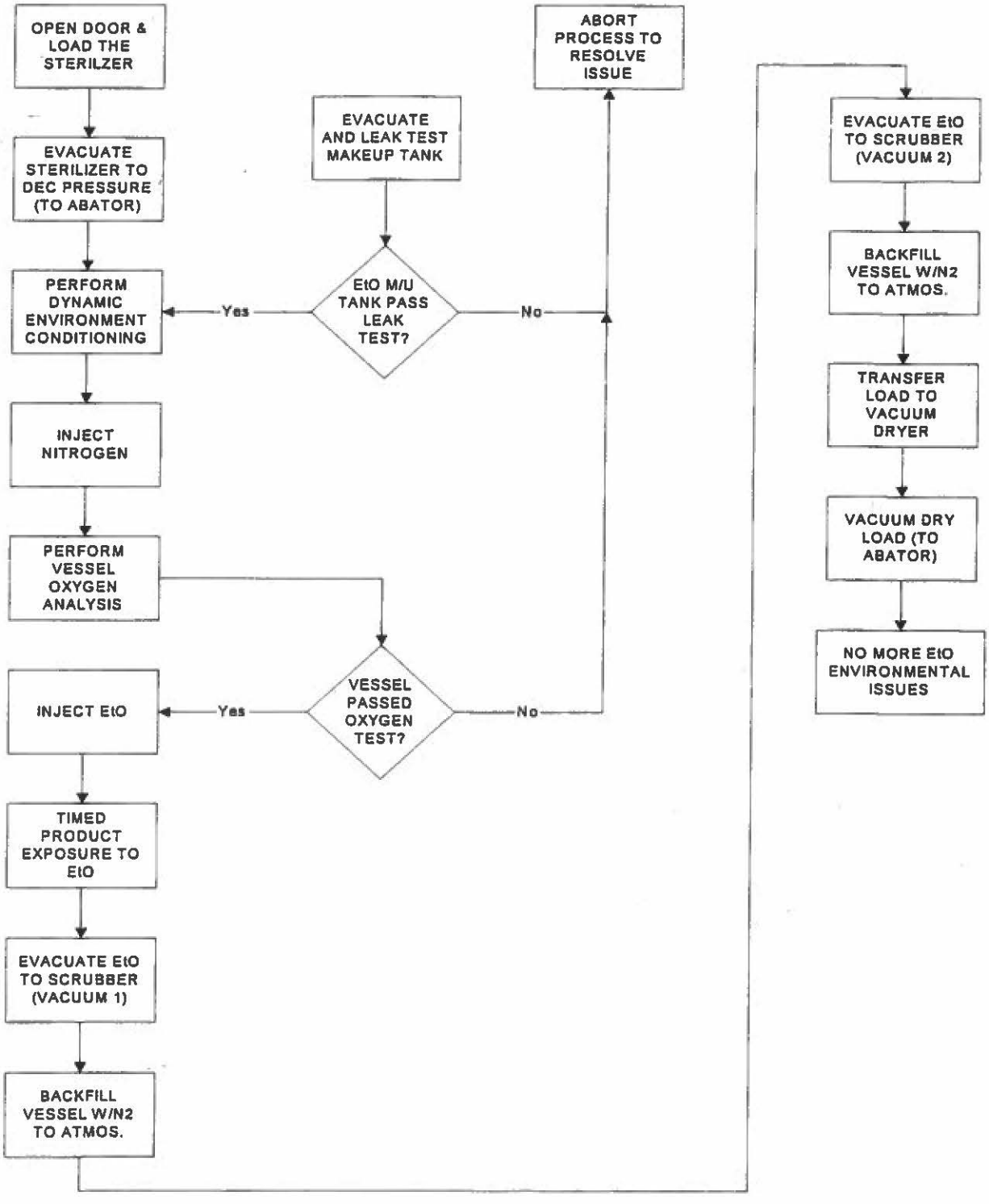
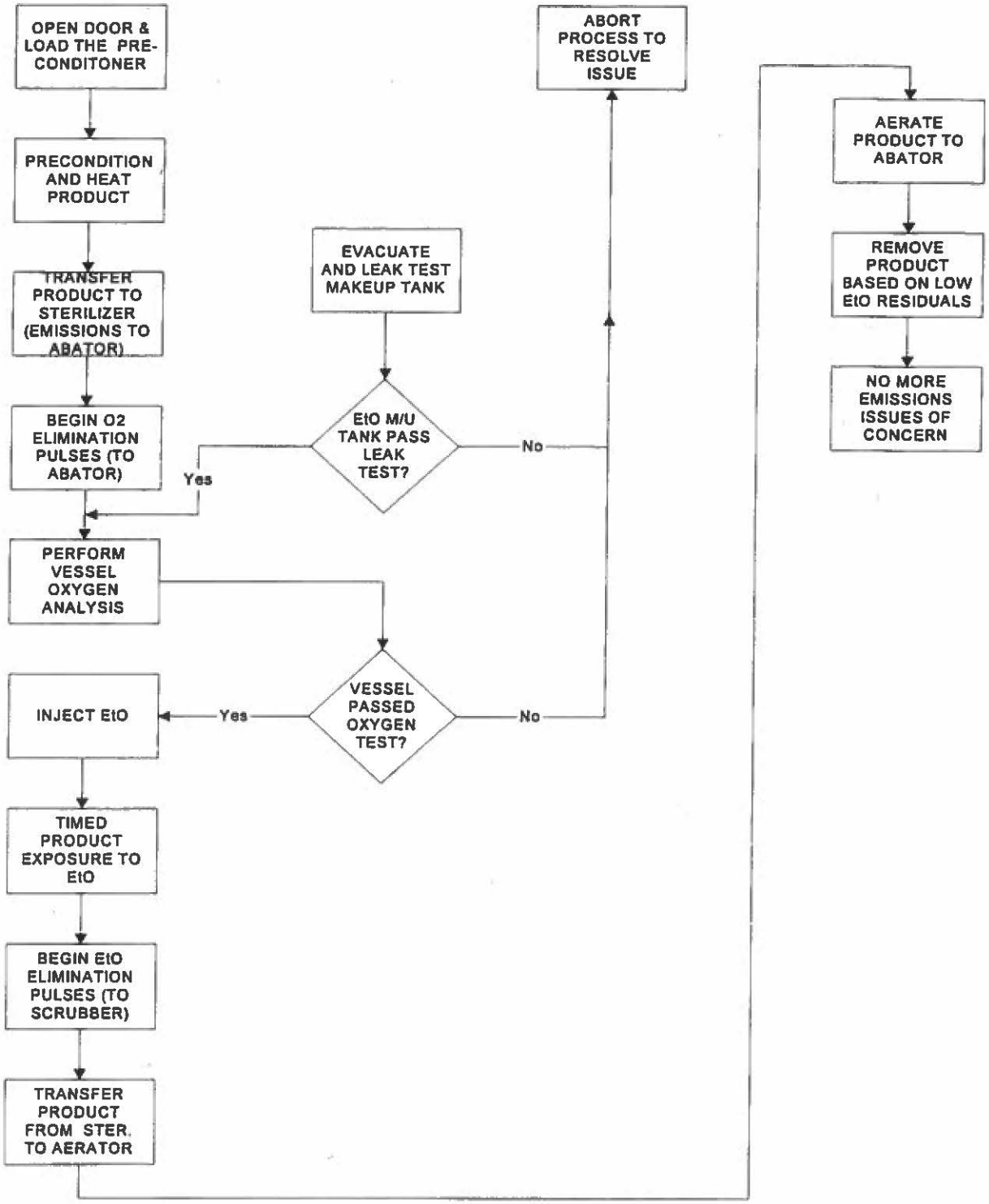


FIGURE 2.4
PROCESS FLOW DIAGRAM FOR
SECONDARY STERILIZATION ENVIRONMENTAL OPERATIONS



SECTION 3
TESTING METHODOLOGY

3.1 SAMPLE COLLECTION

3.1.1 Abators

Samples were collected into evacuated 10 liter Tedlar bags through sampling connections located in the inlet and exhaust ducts on each of the two abators. The inlet and outlet samples were collected through a Teflon tube connected directly into Tedlar bags. The bags were installed in air tight chambers and filled by withdrawing air from inside the chamber allowing the bags to be filled as result of the differential pressure created between the sample probe and the exterior surface of the bag. The outlet samples were collected simultaneously with the inlet samples over a period of approximately five to ten minutes. The inlet samples were collected by inserting the Teflon tubing one third of the way into the inlet duct; the samples at the abator exhaust were collected from a permanently installed sampling array positioned across the duct cross-sectional area. A diagram showing the setup of the sampling equipment is shown in Figure 3.1. The sample bags were analyzed immediately after sample collection on a Perkin Elmer gas chromatograph operated on site.

3.1.2 Scrubbers

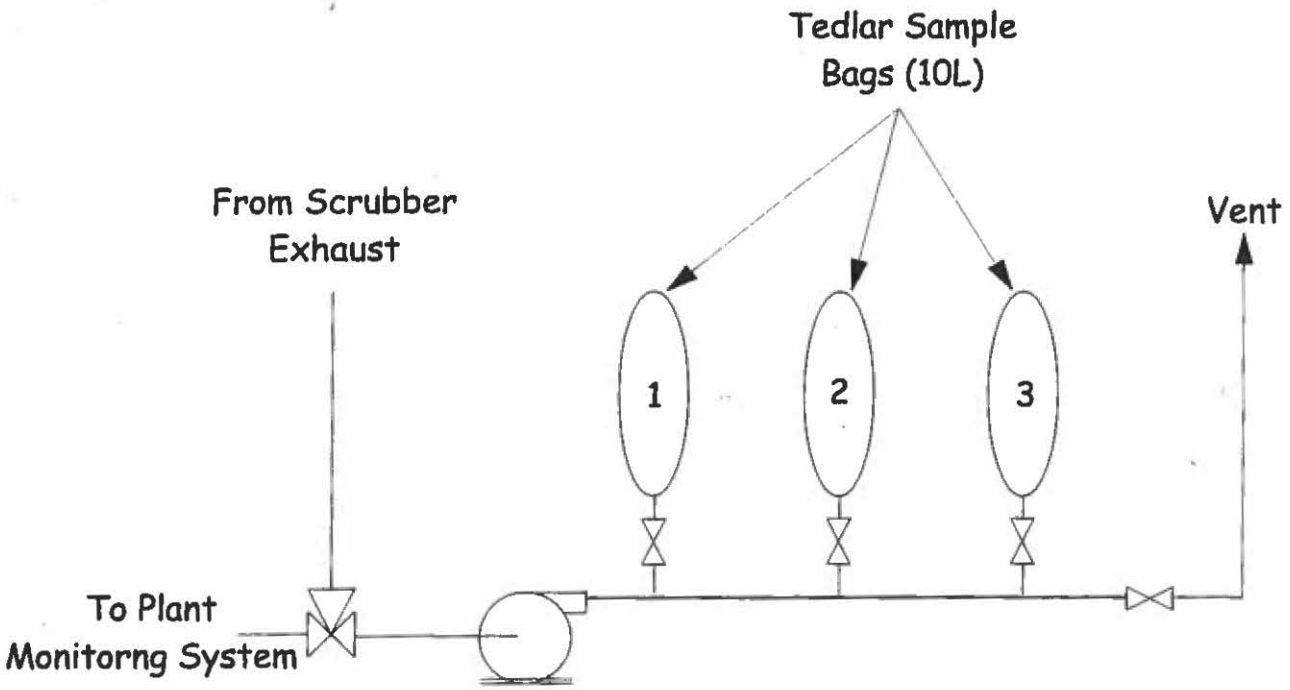
Samples from the scrubbers were collected from stainless steel tubing permanently installed in the scrubber exhaust duct. The stainless steel tubing is normally used to deliver sample to the Ethicon on-line EtO monitoring system. A three-way valve installed in the stainless steel tubing was used to divert the exhaust gas sample from the monitoring system to the PES sampling system. The sampling system included a Teflon lined diaphragm pump with a manifold/valve system connected to the outlet of the pump. Three Tedlar bags were connected to the manifold system and were filled when a sterilizer charged with EtO was evacuated to the scrubber. The first bag was filled during the period when the sterilizer pressure went from 90 kPa to approximately 45 kPa; the second bag was filled during the period when the sterilizer pressure was reduced from 45 kPa to 10 kPa; and the third bag was filled while the sterilizer pressure was reduced from 10 kPa to approximately zero. The bags were filled over a period of approximately 70-80 minutes. Information regarding the sterilizer pressure was communicated to the sampling team by the control room via hand held radios. A diagram showing the setup of the sampling equipment is shown in Figure 3.1. The sample bags were analyzed immediately after sample collection on the gas chromatograph operated on site.

3.2 DESCRIPTION OF GAS CHROMATOGRAPH MONITORING SYSTEM

The EtO analysis was conducted following the procedures of EPA Method 18 utilizing a gas chromatograph (GC) operated on site. Each Tedlar bag sample was analyzed within fifteen minutes of sample collection. The GC is a dual channel, Auto-system Model, manufactured by Perkin Elmer, equipped with Arnel 6-port sample/injection valves, flame ionization detectors, a microprocessor controller, and a dual channel integrator.

FIGURE 3.1

DIAGRAM OF SCRUBBER EXHAUST SAMPLING SET-UP



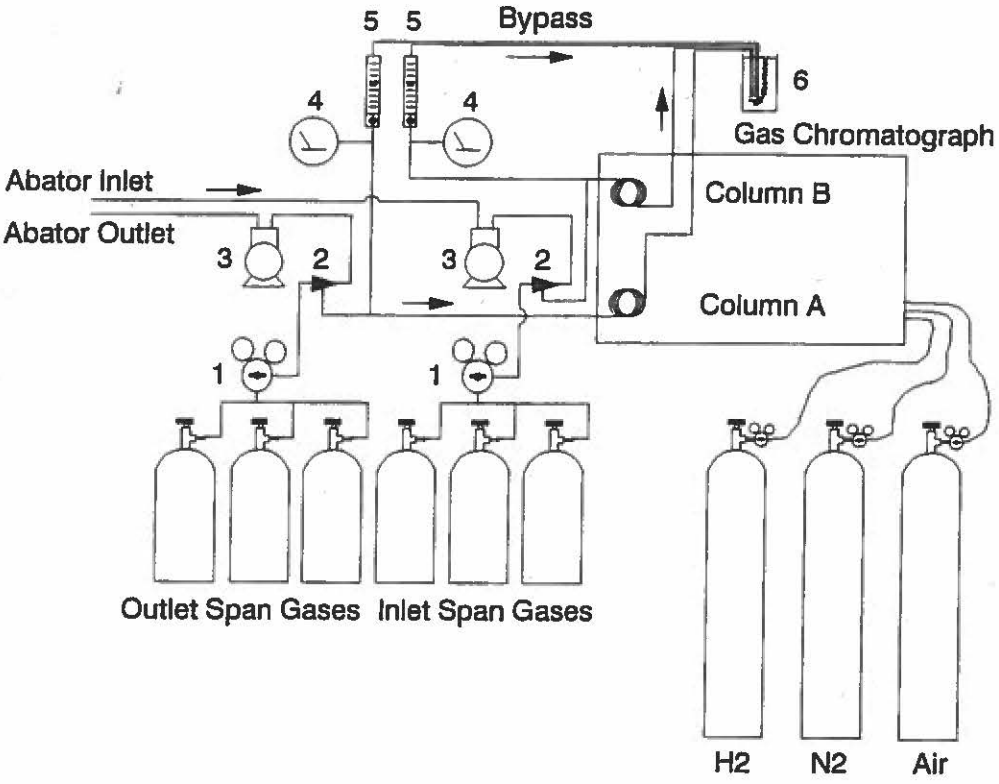
Note:

Bag 1 Filled between 90-45 kpa
Bag 2 Filled between 45-10 kpa
Bag 3 Filled between 10-0 kpa

Chromatogram data were displayed on a 16-inch CRT and archived on a hard disk drive. The chromatographic columns were manufactured by Supelco, six feet long, 0.125" OD stainless steel, and packed with 10 percent SP-1000 on 60/80 mesh Carbopack B. The carrier gas was ultra pure nitrogen. The columns were operated at 45°C, the injectors at 200°C, the detectors at 250°C, and the sample valve at 150°C. For each channel, the sample was delivered to the GC through a heated loop of 1/8-inch Teflon tubing by way of a Thomas, Teflon-lined sampling pump, and sample distribution manifold that incorporated a 0-5 "H_2O Magnehelic gage, and a bypass rotometer, to deliver sample and calibration gases to the sample loop under isopiestic conditions. The pump was located upstream of the sample loop and the Magnehelic monitored the backpressure of the sample loop created either by the pump in the sample mode or by the calibration gas from the pressurized cylinder in the span mode. The backpressure was regulated by varying the flow through the bypass flow meter and a three-way valve selected either the sample pump or span gas cylinder. The EtO bypassed was vented through an impinger/scrubber containing 1N sulfuric acid to act as a safety scrubber. Before testing, the GC was calibrated with low, mid, and high span gases. The inlet channel was calibrated with 98, 2129, and 5000 ppmv EtO span gases. The outlet channel was spanned with 1.09, 5.1, and 10.1 ppmv EtO span gases. The GC setup for the on site sample analyses is presented in Figure 3.2

FIGURE 3.2

DIAGRAM OF GAS CHROMATOGRAPH



1. Span Gas Regulator
2. 3-Way Sample Valve
3. Sample Pump
4. Back Pressure Magnehelic
5. Bypass Flow Meter
6. Acidic Scrubber

SECTION 4
RESULTS

The results of the source testing for each of the abators are summarized in Table 4.1. Both of the units demonstrated control efficiencies within regulatory requirements for the destruction of ethylene oxide. The overall destruction efficiency was greater than 99.9% for both units with inlet concentrations ranging from a low of 130 ppm v/v to a maximum inlet concentration of 209 ppm v/v.

The results of the scrubber testing are presented in Table 4.2. Both scrubbers demonstrated EtO control efficiencies of greater than 99%. The average weight of ethylene oxide charged to a sterilizer loaded with product was 30.36 lbs; and the charge of ethylene oxide to the empty chamber was 28.38 lbs. The scrubber efficiency was determined by measuring the concentration of EtO at the scrubber exhaust over the entire period of evacuation. The period of evacuation was determined by monitoring the initial pressure in the sterilizer prior to starting the vacuum pump. The pressure in the chamber was 94 kPa when the pump was started, and approximately 1 kPa when the sampling was terminated.

The exhaust gas flow at the scrubber exhaust was based on the amount of nitrogen that was present in the sterilizer chamber before introducing the ethylene oxide. Since, ethylene oxide is the only gas which reacts with the scrubber solution to form ethylene glycol as it passes through the scrubber solution, it is safe to assume that all of the nitrogen passes through the scrubber and into the atmosphere. Since only the ethylene oxide is reacted and absorbed by the scrubber, it assumed that all of the nitrogen passes through the scrubber and into the atmosphere. The weight of nitrogen was determined by the initial pressure in the sterilizer and the final pressure of nitrogen, approximately 42 kPa before ethylene oxide was introduced into the chamber. Since the flow of nitrogen was in the range of 3 cubic feet per minute, it was impossible to measure this flow with a Pitot tube following EPA Reference Methods 1-4. As an alternative, a hot wire anemometer was positioned in the exhaust duct but the velocity of the exhaust was still significantly less that the accuracy of the instrument. The instrument full scale range was 600 fpm, and the exhaust gas velocity of nitrogen during evacuation was less than 7 fpm. The data used in the calculation of the nitrogen flow are summarized in Table 4.3.

The laboratory results of scrubber samples collected before and after the testing program are presented in Table 4.4.

The gas chromatography sample run data are summarized in Tables 4.5 through Table 4.7 for the data collected September 15-17, 2003 respectively.

Additional data such as copies of the various chromatograms and other supporting data are located in the Appendices.

TABLE 4.1

RESULTS OF SOURCE TESTING
THE EAST AND WEST ABATORS

Conducted on: September 15-16, 2003

Unit Tested	Inlet Concentration (ppm v/v)	Outlet Concentration (ppm v/v)	Efficiency (%)
West Abator (tested on Sept.15)			
Test No. 1	~~135~~ 152.2	<0.10	>99.9
Test No. 2	~~145~~ 190	<0.10	>99.9
Test No. 3	~~130~~ 167	<0.10	>99.9
Average	~~137~~ 161	<0.10	>99.9
East Abator (tested on Sept. 16)			
Test No. 1	~~132~~ 134	<0.10	>99.9
Test No. 2	~~209~~ 210	<0.10	>99.9
Test No. 3	~~140~~ 141	<0.10	>99.9
Average	~~160~~ 162	<0.10	>99.9

TABLE 4.2

RESULTS OF SOURCE TESTING
FLUID BED SCRUBBERS

Conducted on: September 16-17, 2003

Date	Time	Vessel	Scrubber	Inlet EtO (lbs)	Outlet EtO (lbs)	Efficiency (%)
9/16/03	1215-1320	Sterilizer O (loaded)	East	30.36	0.0005	>99.99
9/16/03	1950-2047	Sterilizer T (loaded)	West	30.58	0.0017	>99.99
9/17/03	0043-0131	Sterilizer U (loaded)	West	aborted test	aborted test	aborted test
9/17/03	0905-1035	Sterilizer T (empty)	West	28.38	0.0021	>99.99
9/17/03	1327-1417	Sterilizer U (loaded)	West	30.14	0.0029	>99.99

$99.816 = \frac{28.38 - .0021}{28.38} \times 100$

$100 - (\frac{.0029}{30.14} = -9.621765E-5$

$= 99.99037\ \%$ (e x 100)

$\frac{.0021}{28.38} = 7.399677686702E-5$

$= 99.9926\ \%$ (e x 100)

$99.99 = \frac{30.14 - .0029}{30.14}$ x10

TABLE 4.3
NITROGEN EXHAUST GAS FLOW
FROM STERILIZERS THROUGH FLUID BED SCRUBBERS

Parameter	Test 1	Test 2	Test 3	Test 4
Date	9/16/2003	9/16/2003	9/17/2003	9/17/2003
Clock Time	1215-1320	1950-2047	0905-1035	1327-1417
Sterilizer	O	T	T (empty)	U
Scrubber	East	West	West	West
Minutes for Evacuation	65	57	90	50
Pressure Initial				
kPa [1]	3.73	3.72	3.73	3.73
psia [2]	0.541	0.539	0.541	0.541
Pressure Final				
kPa [3]	42.3	43.0	42.3	42.4
psia [2]	6.134	6.235	6.134	6.148
Chamber Temperature				
deg C	34	35	36	34
deg F [4]	93	95	97	93
Weight of Nitrogen [5]				
Kg	6.85	6.98	6.85	6.87
lbs [6]	15.08	15.36	15.08	15.12
Volume of Nitrogen				
cubic meters	5.89	6.00	5.89	5.91
cubic feet [7]	208.1	211.9	208.1	208.6
Exhaust Rate				
cubic meters per minute	0.091	0.105	0.066	0.118
cubic feet per minute [8]	3.20	3.72	2.31	4.17
EtO in scrubber exhaust				
ppmvd	21	69	88	122
lbs/evacuation [9]	0.0005	0.0017	0.0021	0.0029

[1] Initial Pressure from process data

[2] psia = kPa x 0.145 psia/kPa

[3] Final Pressure form process data

[4] deg F = (9/5 deg C) + 32

[5] Nitrogen (Kg) = (kPa final-kPa initial) x 144 x cubic meters of chamber/(1545/mw N_2) x (Temp Chamber + 273)
Nitrogen (lbs) = (psia final - psia initial) 144 x cubic ft of chamber / (1545/mw N_2) x (Temp Chamber + 460)

[6] lbs = kg x 2.2 lbs/kg

[7] cubic feet of nitrogen = lbs of N_2 x 13.80 cf/lb

[8] cubic feet = cubic meters x 35.3 cubic feet/cubic meter

[9] lbs/evacuation = ppmvd x cubic feet of N_2 x MW of N_2 x 2.60 x 10^{-9} lbs/lbmole-ppmvd

molecular weight of nitrogen = 28.01 mole wt

molecular weight of ethylene oxide = 44.05 mole wt

volume of empty chamber = 475 cubic feet

TABLE 4-4
RESULTS OF SCRUBBER SOLUTION ANALYSES [1]

Date	Scrubber	Parameter	Results
9/17/03	B	Ph	0.3
		Ethylene Glycol	281,000 mg/L
	D	pH	0.2
		Ethylene Glycol	305,000 mg/L
9/22/03	B	pH	0.2
		Ethylene Glycol	330,000 mg/L
	D	pH	0.2
		Ethylene Glycol	326,000 mg/L

[1] Sampled and analyzed by Enviro-Tech Laboratories, Inc., San Angelo, Texas

TABLE 4.5
GAS CHROMATOGRAPHY RUN SUMMARY
ETHICON, INC.
SEPTEMBER 15, 2003

Chromatogram	Channel A (outlet)	Channel B (inlet)
ETO00001	Calibration set-up	Calibration set-up
ETO00002	Calibration set-up	Calibration set-up
ETO00003	Calibration set-up	Calibration set-up
ETO00004	Calibration set-up	Calibration set-up
ETO00005	Calibration set-up	Calibration set-up
ETO00006	Calibration set-up	Calibration set-up
ETO00007	1.01 ppm Low Cal	98.1 ppm Low Cal
ETO00008	1.02 ppm Low Cal	98.5 ppm Low Cal
ETO00009	1.01 ppm Low Cal	98.2 ppm Low Cal
ETO00010	1.01 ppm Low Cal	98.8 ppm Low Cal
ETO00011	1.01 ppm Low Cal	98.4 ppm Low Cal
ETO00012	5.21 ppm Mid Cal	2,129 ppm Mid Cal
ETO00013	5.15 ppm Mid Cal	2,130 ppm Mid Cal
ETO00014	5.13 ppm Mid Cal	2,131 ppm Mid Cal
ETO00015	10.12 ppm High Cal	5,020 ppm High Cal
ETO00016	10.12 ppm High Cal	5,023 ppm High Cal
ETO00017	10.15 ppm High Cal	5,023 ppm High Cal
ETO00018	<100 ppb West Abator Run 0	14 ppm West Abator-Preliminary
ETO00019	<100 ppb West Abator Run 1	152 ppm West Abator
ETO00022	<100 ppb West Abator Run 1	151 ppm West Abator
ETO00021	<100 ppb West Abator Run 1	153 ppm West Abator
ETO00022	<100 ppb West Abator Run 2	191 ppm West Abator
ETO00023	<100 ppb West Abator Run 2	188 ppm West Abator
ETO00024	<100 ppb West Abator Run 2	190 ppm West Abator
ETO00025	<100 ppb West Abator Run 2	190 ppm West Abator
ETO00026	<100 ppb West Abator Run 3	160 ppm West Abator
ETO00027	<100 ppb West Abator Run 3	162 ppm West Abator
ETO00028	<100 ppb West Abator Run 3	165 ppm West Abator
ETO00029	1.01 ppm Low Cal	100.3 ppm Low Cal
ETO00030	1.02 ppm Low Cal	102.0 ppm Low Cal
ETO00031	1.02 ppm Low Cal	101.0 ppm Low Cal
ETO00032	5.23 ppm Mid Cal	2,129 ppm Mid Cal
ETO00033	5.16 ppm Mid Cal	2,129 ppm Mid Cal
ETO00034	5.34 ppm Mid Cal	2,128 ppm Mid Cal
ETO00035	10.12 ppm High Cal	5,001 High Cal
ETO00036	10.24 ppm High Cal	5,002 High Cal
ETO00037	10.12 ppm High Cal	5,001 High Cal

TABLE 4.6
GAS CHROMATOGRAPHY RUN SUMMARY
ETHICON, INC.
SEPTEMBER 16, 2003

Chromatogram	Channel A (outlet)	Channel B (inlet)
ETO00038	1.00 ppm Low Cal	101.9 ppm Low Cal
ETO00039	1.01 ppm Low Cal	102.0 ppm Low Cal
ETO00040	1.01 ppm Low Cal	101.0 ppm Low Cal
ETO00041	5.13 ppm Mid Cal	2,129 ppm Mid Cal
ETO00042	5.12 ppm Mid Cal	2,127 ppm Mid Cal
ETO00043	5.12 ppm Mid Cal	2,129 ppm Mid Cal
ETO00044	10.14 ppm High Cal	5,006 ppm High Cal
ETO00045	10.14 ppm High Cal	5,007 ppm High Cal
ETO00046	10.10 ppm High Cal	5,008 ppm High Cal
ETO00047	<100 ppb East Abator Run 1	140 ppm East Abator
ETO00048	<100 ppb East Abator Run 1	132 ppm East Abator
ETO00049	<100 ppb East Abator Run 1	130 ppm East Abator
ETO00050	<100 ppb East Abator Run 2	211 ppm East Abator
ETO00051	<100 ppb East Abator Run 2	210 ppm East Abator
ETO00052	<100 ppb Abator Run 2	208 ppm East Abator
ETO00053	<100 ppb East Abator Run 3	142 ppm East Abator
ETO00054	<100 ppb East Abator Run 3	140 ppm East Abator
ETO00055	<100 ppb East Abator Run 3	140 ppm East Abator
ETO00056		35 ppm Bag 1 East Scrubber - O
ETO00057		34 ppm Bag 1 East Scrubber - O
ETO00058		19 ppm Bag 2 East Scrubber - O
ETO00059		19 ppm Bag 2 East Scrubber - O
ETO00060		9.2 ppm Bag 3 East Scrubber - O
ETO00061		9.1 ppm Bag 3 East Scrubber - O
ETO00062		98 ppm Bag 1 West Scrubber -T
ETO00063		99 ppm Bag 1 West Scrubber –T
ETO00064		67 ppm Bag 2 West Scrubber – T
ETO00065		65 ppm Bag 2 West Scrubber – T
ETO00066		41 ppm Bag 3 West Scrubber – T
ETO00067		42 ppm Bag 3 West Scrubber – T
ETO00068		aborted sample wrong scrubber
ETO00069		aborted sample wrong scrubber
ETO00070		aborted sample wrong scrubber
ETO00071	1.01 ppm Low Cal	101.2 ppm Low Cal
ETO00072	1.00 ppm Low Cal	101.1 ppm Low Cal
ETO00073	1.00 ppm Low Cal	101.3 ppm Low Cal
ETO00074	5.24 ppm Mid Cal	2,119 ppm Mid Cal
ETO00075	5.12 ppm Mid Cal	2,119 ppm Mid Cal
ETO00076	5.14 ppm Mid Cal	2,118 ppm Mid Cal
ETO00077	10.12 ppm High Cal	5,002 ppm High Cal
ETO00078	10.31 ppm High Cal	5,000 ppm High Cal
ETO00079	10.23 ppm High Cal	5,001 ppm High Cal

TABLE 4.7
GAS CHROMATOGRAPHY RUN SUMMARY
ETHICON, INC.
SEPTEMBER 17, 2003

Chromatogram	Channel A (outlet)	Channel B (inlet)
ETO00080		101.9 ppm Low Cal
ETO00081		101.5 ppm Low Cal
ETO00082		2,128 ppm Mid Cal
ETO00083		2,129 ppm Mid Cal
ETO00084		5,005 ppm High Cal
ETO00085		5,003 ppm High Cal
ETO00086		119 ppm Bag 1 West Scrubber-T empty
ETO00087		120 ppm Bag 1 West Scrubber-T empty
ETO00088		86 ppm Bag 2 West Scrubber-T empty
ETO00089		87 ppm Bag 2 West Scrubber-T empty
ETO00090		59 ppm Bag 3 West Scrubber-T empty
ETO00091		54 ppm Bag 3 West Scrubber-T empty
ETO00092		185 ppm Bag 1 West Scrubber-U
ETO00093		185 ppm Bag 1 West Scrubber-U
ETO00094		98 ppm Bag 2 West Scrubber-U
ETO00095		99 ppm Bag 2 West Scrubber-U
ETO00096		81 ppm Bag 3 West Scrubber-U
ETO00097		80 ppm Bag 3 West Scrubber-U
ETO00098		99.3 ppm Low Cal
ETO00099		99.5 ppm Low Cal
ETO00100		2,129 ppm Mid Cal
ETO00101		2,128 ppm Mid Cal
ETO00102		5,001 ppm High Cal
ETO00103		5,005 ppm High Cal

APPENDIX A

FEDERAL AND STATE OPERATING PERMITS

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 21, 2003

Mr. Rudy Rodriguez
Plant Manager
Ethicon, Inc.
3348 Pulliam Street
San Angelo, Texas 76905

Re: Effective Permit Approval
Initial Issuance
Project Number: 3766
Permit Number: O-02452
Ethicon, Inc.
San Angelo Plant
San Angelo, Tom Green County
Account Number: TG-0079-G

Dear Mr. Rodriguez:

The effective federal operating permit (FOP) for Ethicon, Inc., San Angelo Plant is enclosed. This FOP constitutes authority to operate the emission units identified in the FOP application.

All site operating permits are subject to public petition for 60 days following the expiration of the 45-day U.S. Environmental Protection Agency (EPA) review. The public petition period for the FOP extends from February 8, 2003 until April 8, 2003. If the EPA receives a valid petition and objects to the above-referenced permit, you will be notified promptly by the Texas Commission on Environmental Quality (TCEQ).

It should be noted that from the date of this letter Ethicon, Inc., San Angelo Plant must operate in accordance with the requirements of Title 30 Texas Administrative Code Chapter 122 (30 TAC Chapter 122) and the FOP. Some of the terms and conditions contained in the FOP include recordkeeping conditions, reporting conditions (which includes deviation reporting), and compliance certification conditions. All reports, along with any questions regarding the reports, shall be forwarded to the TCEQ's San Angelo Regional Office, 622 S. Oakes, Suite K, San Angelo, Texas 76903-7013.

Consistent with 30 TAC Chapter 122, Subchapter C, the permit holder shall submit an application to the Air Permits Division (APD) for a revision to an FOP for those activities at a site which change, add, or remove one or more FOP terms or conditions. The permit holder shall also submit an application to the APD for a revision to a permit to address the following: the adoption of an applicable requirement previously designated as federally enforceable only; the promulgation of a new applicable requirement; the adoption of a new state-only requirement; or a change in a state-only designation.

In addition, please note that 30 TAC Chapter 122 was revised on November 20, 2002, with an effective date of December 11, 2002. In part, this revision amended the definition of applicable requirement to include certain sections of 30 TAC Chapter 101. In accordance with the November 20, 2002 adoption, the attached permit has been revised to reflect the new applicable requirements.

Thank you again for your cooperation in this matter. If you have questions concerning the review or this notice, please contact Mr. Tomas Ennis at (512) 239-3553.

Sincerely,

for Margaret Hoffman
Executive Director
Texas Commission on Environmental Quality

MH/TE/jp

cc: Mr. Tahseen Khan, Staff Environmental Engineer, Ethicon, Inc., San Angelo
Mr. John Haagensen, Environmental Engineer, Ethicon, Inc., San Angelo
Mr. Mark Newman, Air Program Manager, Region 8 - San Angelo

Enclosure: Effective Permit

cc: Ms. Mary Stanton, U.S. Environmental Protection Agency, Region 6, Dallas

FEDERAL OPERATING PERMIT

A FEDERAL OPERATING PERMIT IS HEREBY ISSUED TO

Ethicon, Inc.

AUTHORIZING THE OPERATION OF

San Angelo Plant
Surgical & Medical Instruments

LOCATED AT

Tom Green County, Texas

LATITUDE 31° 28' 18" LONGITUDE 100° 23' 10"

Account Number: TG-0079-G

This permit is issued in accordance with and subject to the Texas Clean Air Act (TCAA), Chapter 382 of the Texas Health and Safety Code and Title 30 Texas Administrative Code Chapter 122 (30 TAC Chapter 122), Federal Operating Permits. Under 30 TAC Chapter 122, this permit constitutes the permit holder's authority to operate the site and emission units listed in this permit. Operation of the site and emission units listed in this permit are subject to all additional rules or amended rules and orders of the Commission pursuant to the TCAA.

This permit does not relieve the permit holder from the responsibility of obtaining New Source Review authorization for new, modified, or existing facilities in accordance with 30 TAC Chapter 116, Control of Air Pollution by Permits for New Construction or Modification.

The site and emission units authorized by this permit shall be operated in accordance with 30 TAC Chapter 122, the general terms and conditions, special terms and conditions, and attachments contained herein.

This permit shall expire five years from the date of issuance. The renewal requirements specified in 30 TAC § 122.241 must be satisfied in order to renew the authorization to operate the site and emission units.

Permit No: O-02452 Issuance Date: April 21, 2003

Margaret Hoffman

Executive Director

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GENERAL TERMS AND CONDITIONS

The permit holder shall comply with all terms and conditions contained in 30 TAC § 122.143 (General Terms and Conditions), 30 TAC § 122.144 (Recordkeeping Terms and Conditions), 30 TAC § 122.145 (Reporting Terms and Conditions), and 30 TAC § 122.146 (Compliance Certification Terms and Conditions).

The permit holder shall comply with 30 TAC Chapter 116 by obtaining a New Source Review authorization prior to new construction or modification of emission units located in the area covered by this permit.

All reports required by this permit shall be forwarded to the Texas Commission on Environmental Quality (TCEQ) regional office for your site. For reports submitted, please include a cover letter which identifies the following information: company name, primary TCEQ account number, site name, area name (if applicable), and Air Permits Division permit number.

SPECIAL TERMS AND CONDITIONS:

Emission Limitations and Standards, Monitoring and Testing, and Recordkeeping and Reporting:

1. Permit holder shall comply with the following requirements:

   A. Emission units (including groups and processes) in the Applicable Requirements Summary attachment shall meet the limitations, standards, equipment specifications, monitoring, recordkeeping, reporting, testing, and other requirements listed in the Applicable Requirements Summary attachment to assure compliance with the permit.

   B. The textual description in the column titled "Textual Description" in the Applicable Requirements Summary attachment is not enforceable and is not deemed as a substitute for the actual regulatory language. The Textual Description is provided for information purposes only.

   C. A citation listed on the Applicable Requirements Summary attachment, which has a notation [G] listed before it, shall include the referenced section and subsection for all commission rules, or paragraphs for all federal and state regulations and all subordinate paragraphs, subparagraphs and clauses, subclauses, and items contained within the referenced citation as applicable requirements.

   D. The permit holder shall comply with the applicable requirements of 40 CFR Part 63, Subpart O and 30 TAC Chapter 113, Subchapter C, Division 6. The specific 40 CFR Part 63, Subpart O standards, as well as, monitoring, testing, recordkeeping, and reporting requirements that apply to the emission unit under 30 TAC Chapter 113, Subchapter C, Division 6 Section 113.200 are depicted in the attached applicable requirements summary table for 40 CFR Part 63, Subpart O.

2. The permit holder shall comply with the following sections of 30 TAC Chapter 101, (General Rules):

   A. Definitions of §101.1, insofar as the terms defined in this section are used to define the terms used in other applicable requirements;

   B. Circumvention under §101.3;

   C. Sampling under §101.8, if such action has been requested by the TCEQ;

   D. Sampling Ports under §101.9, if such action has been requested by the TCEQ;

   E. Emissions Inventory Requirements of §101.10;

   F. Emission Event Reporting and Recordkeeping Requirements of §101.201;

   G. Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements of §101.211;

   H. Operational Requirements of §101.221;

   I. Demonstrations under §101.222; and

   J. Actions to Reduce Excessive Emissions under §101.223.

3. Permit holder shall comply with the following requirements of 30 TAC Chapter 111:

   A. For visible emissions from stationary vents constructed after January 31, 1972, the permit holder shall comply with the following requirements:

      (i) 30 TAC § 111.111(a)(1)(B) (relating to Requirements for Specified Sources);

      (ii) 30 TAC § 111.111(a)(1)(F)(ii), (iii), or (iv); and

      (iii) The permit holder shall also comply with the following periodic monitoring requirements for the purpose of annual compliance certification under 30 TAC § 122.146:

      An annual observation of stationary vents which are required to comply with 30 TAC § 111.111(a)(1)(B) shall be conducted at least once during each 12-month certification period. Visible emission observations are not required for stationary vessels (which includes both storage and process vessels), tanks, reservoirs, distillation columns, decanters, or other containers holding a VOC, and water separators which separate material containing a VOC since these types of emission units are unable to exceed the opacity limitations in 30 TAC § 111.111(a)(1)(B) due to the characteristics of a VOC.

The observations must occur at least once during each 12-month certification period. Visible emissions observations shall be made and recorded. However, if liquid fuel is fired for a period greater than or equal to 24 consecutive hours, the permit holder shall conduct an observation of the stationary vent for each such period to determine if visible emissions are observed. Documentation of the observations shall be maintained.

Visible emissions shall be determined with each stationary vent in clear view of the observer. The observer shall be at least 15 feet, but not more than 0.25 miles, away from each stationary vent during the observation. For outdoor locations, the observer shall select a position where the sun is not directly in the observer's eyes. When condensed water vapor is present within the plume, as it emerges from the emissions outlet, observations must be made beyond the point in the plume at which condensed water vapor is no longer visible. When water vapor within the plume condenses and becomes visible at a distance from the emissions outlet, the observation shall be evaluated at the outlet prior to condensation of water vapor.

If visible emissions are not present during the annual observation or firing of liquid fuel, the RO may certify that the source is in compliance with the applicable opacity requirement in 30 TAC § 111.111(a)(1) and (a)(1)(B). Documentation of the observations shall be maintained.

However, if visible emissions are present during the annual observation or firing of liquid fuel, the permit holder shall either list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2) or conduct the appropriate opacity test specified in 30 TAC § 111.111(a)(1)(F) to determine if the source is in compliance with the opacity requirements. If an opacity test is performed and the source is determined to be in compliance, the RO may certify that the source is in compliance with the applicable opacity requirement. However, if an opacity test is performed and the source is determined to be out of compliance, the permit holder shall list this occurrence as a deviation on the next deviation report as required under 30 TAC § 122.145(2).

Some vents may be subject to multiple visible emission or monitoring requirements. All credible data must be considered when certifying compliance with this requirement even if the observation or monitoring was performed to demonstrate compliance with a different requirement.

4. The permit holder shall comply with the following requirements for units subject to any subpart of 40 CFR Part 60, unless otherwise stated in the applicable subpart:

   A. Title 40 CFR § 60.7 (relating to Notification and Recordkeeping);

   B. Title 40 CFR § 60.8 (relating to Performance Tests);

C. Title 40 CFR § 60.9 (relating to Availability of Information);

D. Title 40 CFR § 60.11 (relating to Compliance with Standards and Maintenance Requirements);

E. Title 40 CFR § 60.12 (relating to Circumvention);

F. Title 40 CFR § 60.13 (relating to Monitoring Requirements);

G. Title 40 CFR § 60.14 (relating to Modification);

H. Title 40 CFR § 60.15 (relating to Reconstruction); and

I. Title 40 CFR § 60.19 (relating to General Notification and Reporting Requirements).

5. The permit holder shall comply with the following requirements for units subject to any 40 CFR Part 63 for Source Categories unless otherwise stated in the applicable subpart:

A. Title 40 CFR § 63.4 (relating to Prohibited Activities and Circumvention);

B. Title 40 CFR § 63.5 (relating to Construction and Reconstruction);

C. Title 40 CFR § 63.6 (relating to Compliance with Standards and Maintenance Requirements);

D. Title 40 CFR § 63.7 (relating to Performance Testing Requirements);

E. Title 40 CFR § 63.8 (relating to Monitoring Requirements);

F. Title 40 CFR § 63.9 (relating to Notification Requirements);

G. Title 40 CFR § 63.10 (relating to Recordkeeping and Reporting Requirements); and

H. Title 40 CFR § 63.15 (relating to Availability of Information and Confidentiality).

6. For sterilization facilities subject to ethylene oxide emission standards in 40 CFR Part 63, Subpart O, the permit holder shall comply with the following requirements (Title 30 TAC Chapter 113, Subchapter B, Division 6 incorporated by reference):

A. Title 40 CFR § 63.360(a) (relating to General Provisions of Subpart A); and

B. Title 40 CFR § 63.367(b) (relating to Recordkeeping Requirements).

New Source Review Authorization Requirements

7. Permit holder shall comply with the requirements of New Source Review authorizations issued or claimed by the permit holder for the permitted area, including permits, permits by rule, standard permits, flexible permits, special permits, permits for existing facilities including Voluntary Emissions Reduction Permits and Electric Generating Facility Permits issued under 30 TAC Chapter 116, Subchapter I, or special exemptions referenced in the New Source Review Authorization References attachment. These requirements:

   A. Are incorporated by reference into this permit as applicable requirements.

   B. Shall be located with this operating permit.

   C. Are not eligible for a permit shield.

8. In addition to the New Source Review authorizations specifically listed in the New Source Review Authorization Reference attachment, the permit holder shall comply with the appropriate Permits By Rule (PBR) claimed or issued prior to 1991. To facilitate identification of any pre-1991 PBRs in this permit, a list of potential PBRs that may apply has been included in the attachment "Additional Permits By Rule In Effect Prior to 1991 That May Apply to This Operating Permit." The permit holder shall revise this permit to specify which PBRs are applicable at the next permit action on or after six months following the issuance date of this permit.

9. The permit holder shall comply with the general requirements of 30 TAC Chapter 106, Subchapter A or the general requirements, if any, in effect at the time of the claim of any PBR.

10. Changes to qualified facilities meeting the criteria of 30 TAC Chapter 116 § 116.116(e) are incorporated in this operating permit by reference until these changes are incorporated in the appropriate NSR permit. The permit holder shall provide documentation and notification as required by 30 TAC § 116.117 for these changes.

Compliance Requirements.

11. The permit holder shall certify compliance with all permit terms and conditions using, at a minimum, but not limited to, the continuous or intermittent compliance method data from monitoring, recordkeeping, reporting, or testing required by the permit and any other credible evidence or information. The certification period may not exceed 12 months and the certification must be submitted within 30 days after the end of the period being certified.

Protection of Stratospheric Ozone

12. Owners and operators of a site subject to Title VI of the FCAA Amendments shall meet the following requirements for protection of stratospheric ozone.

A. Any on site servicing, maintenance, and repair on refrigeration and nonmotor vehicle air-conditioning appliances using ozone-depleting refrigerants shall be conducted in accordance with 40 CFR Part 82, Subpart F. Owners or operators shall ensure that repairs or refrigerant removal are performed only by properly certified technicians using certified equipment. Records shall be maintained as required by 40 CFR Part 82, Subpart F.

Permit Location

13. The permit holder shall maintain a copy of this permit and records related to requirements listed in this permit on site.

ATTACHMENTS

Applicable Requirements Summary

New Source Review Authorization References

APPLICABLE REQUIREMENTS SUMMARY

Unit Summary

Unit/Group/ Process ID No.	Unit Type	Group/Inclusive Units	SOP Index No.	Regulation	Requirement Driver
PRO-EAST	Sterilization Source Attributes	EPN-5 EPN-20	63O-1	40 CFR Part 63, Subpart O	Sterilization Chamber Vent = Acid Scrubber
PRO-EAST	Sterilization Source Attributes	EPN-5 EPN-20	63O-2	40 CFR Part 63, Subpart O	Aeration Room Vent = Catalytic or Thermal Oxidizer
PRO-WEST	Sterilization Source Attributes	EPN-10 EPN-21	63O-1	40 CFR Part 63, Subpart O	Sterilization Chamber Vent = Acid Scrubber
PRO-WEST	Sterilization Source Attributes	EPN-10 EPN-21	63O-2	40 CFR Part 63, Subpart O	Aeration Room Vent = Catalytic or Thermal Oxidizer
ETHSA1	Storage Tanks/vessels	N/A	60KB	40 CFR Part 60, Subpart Kb	No changing attributes.

Applicable Requirements Summary

Unit/Group/Process		SOP Index No.	Pollutant	Emission Limitation/Standard or Equipment Specification		Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
ID No.	Type			Name	Citation				
PRO-EAST	EP	63O-1	ETHYLENE OXIDE	40 CFR Part 63, Subpart O	§ 63.362(c) § 63.363(f)	Each owner or operator of a sterilization source using 1 ton shall reduce ethylene oxide emissions to the atmosphere by at least 99 percent from each sterilization chamber vent.	[G]§ 63.363(a) § 63.363(b) § 63.363(b)(1) [G]§ 63.363(b)(2) [G]§ 63.364(a) [G]§ 63.364(b) § 63.364(e) § 63.365(a) § 63.365(b) [G]§ 63.365(b)(1) [G]§ 63.365(c) [G]§ 63.365(e)	[G]§ 63.364(b) § 63.367(a)	[G]§ 63.366(a) [G]§ 63.366(b) [G]§ 63.366(c)
PRO-EAST	EP	63O-2	ETHYLENE OXIDE	40 CFR Part 63, Subpart O	§ 63.362(d) § 63.363(f)	A source using 10 tons shall reduce emissions from each aeration room vent to a maximum concentration of 1 ppmv or by at least 99 percent, whichever is less stringent, from each aeration room vent.	[G]§ 63.363(a) § 63.363(b)(3) [G]§ 63.363(b)(4) § 63.363(c) § 63.363(c)(1) § 63.363(c)(2) § 63.363(c)(3) [G]§ 63.364(a) [G]§ 63.364(c) § 63.364(e) § 63.365(a) [G]§ 63.365(c) [G]§ 63.365(d)	§ 63.364(c) § 63.367(a) § 63.367(d)	[G]§ 63.366(a) [G]§ 63.366(b) [G]§ 63.366(c)
PRO-WEST	EP	63O-1	ETHYLENE OXIDE	40 CFR Part 63, Subpart O	§ 63.362(c) § 63.363(f)	Each owner or operator of a sterilization source using 1 ton shall reduce ethylene oxide emissions to the atmosphere by at least 99 percent from each sterilization chamber vent.	[G]§ 63.363(a) § 63.363(b) § 63.363(b)(1) [G]§ 63.363(b)(2) [G]§ 63.364(a) [G]§ 63.364(b) § 63.364(e) § 63.365(a) § 63.365(b) [G]§ 63.365(b)(1) [G]§ 63.365(c) [G]§ 63.365(e)	[G]§ 63.364(b) § 63.367(a)	[G]§ 63.366(a) [G]§ 63.366(b) [G]§ 63.366(c)

Applicable Requirements Summary

Unit/Group/Process		SOP Index No.	Pollutant	Emission Limitation/Standard or Equipment Specification		Textual Description (See Special Term and Condition 1.B.)	Monitoring And Testing Requirements	Recordkeeping Requirements (30 TAC § 122.144)	Reporting Requirements (30 TAC § 122.145)
ID No.	Type			Name	Citation				
PRO-WEST	EP	63O-2	ETHYLENE OXIDE	40 CFR Part 63, Subpart O	§ 63.362(d) § 63.363(f)	A source using 10 tons shall reduce emissions from each aeration room vent to a maximum concentration of 1 ppmv or by at least 99 percent, whichever is less stringent, from each aeration room vent.	[G]§ 63.363(a) § 63.363(b)(3) [G]§ 63.363(b)(4) § 63.363(c) § 63.363(c)(1) § 63.363(c)(2) § 63.363(c)(3) [G]§ 63.364(a) [G]§ 63.364(c) § 63.364(e) § 63.365(a) [G]§ 63.365(c) [G]§ 63.365(d)	§ 63.364(c) § 63.367(a) § 63.367(d)	[G]§ 63.366(a) [G]§ 63.366(b) [G]§ 63.366(c)
ETHSAI	EU	60KB	VOC	40 CFR Part 60, Subpart Kb	§ 60.110b(c)	Except for §60.116b(a)-(b), vessels meeting the specified design capacities and maximum true vapor pressure are exempt from General Provisions and from provisions of this subpart.	§ 60.116b(a) § 60.116b(b)	§ 60.116b(a) § 60.116b(b)	None

NEW SOURCE REVIEW AUTHORIZATION REFERENCES

New Source Review Authorization References

The New Source Review authorizations listed in the table below are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit.

PSD Permits	NA Permits
PSD Permit No.:	NA Permit No.:
Title 30 TAC Chapter 116 Permits, Special Permits, and Other Authorizations (Other Than Permits By Rule, PSD Permits, or NA Permits) for the Application Area.	
Authorization No.: 20178	Authorization No.:
Authorization No.:	Authorization No.:
Permits By Rule (30 TAC Chapter 106) for the Application Area	
Number: 106.102	Version No./Date: 09/04/2000
Number: 106.103	Version No./Date: 09/04/2000
Number: 106.122	Version No./Date: 09/04/2000
Number: 106.183	Version No./Date: 09/04/2000
Number: 106.227	Version No./Date: 09/04/2000
Number: 106.242	Version No./Date: 09/04/2000
Number: 106.261	Version No./Date: 09/04/2000
Number: 106.262	Version No./Date: 09/04/2000
Number: 106.263	Version No./Date: 11/01/2001
Number: 106.265	Version No./Date: 09/04/2000
Number: 106.266	Version No./Date: 09/04/2000
Number: 106.371	Version No./Date: 09/04/2000
Number: 106.372	Version No./Date: 09/04/2000
Number: 106.418	Version No./Date: 09/04/2000
Number: 106.472	Version No./Date: 09/04/2000
Number: 106.473	Version No./Date: 09/04/2000
Number: 106.511	Version No./Date: 09/04/2000
Number: 106.533	Version No./Date: 11/26/1997
Number: 106.533	Version No./Date: 09/04/2000
Number: PBR-068	Version No./Date: 04/05/1995

New Source Review Authorization References

Number: PBR-086	Version No./Date: 08/11/1989
Number: PBR-478	Version No./Date: 09/12/1989
Municipal Solid Waste and Industrial Hazardous Waste Permits With an Air Addendum09/04/2000	
Permit No.:	Permit No.:
Permit No.:	Permit No.:
Permit No.:	Permit No.:
Permit No.:	Permit No.:

New Source Review Authorization References by Emissions Unit

The following is a list of 30 TAC Chapter 116 New Source Review (NSR) authorizations for emission units listed elsewhere in this operating permit. The NSR authorizations are applicable requirements under 30 TAC Chapter 122 and enforceable under this operating permit. If the unit is grandfathered from 30 TAC Chapter 116 New Source Review authorization requirements then "GF status" will be put in the New Source Review Authorization column of the following table.

Unit/Group/Process ID No.	Emission Unit Name /Description	New Source Review Authorization
ETHSA1	Diesel Storage Tank	PBR-086 / 09/12/1989
PRO-EAST	East Sterilization Process	NSR-20178
PRO-WEST	West Sterilization Process	NSR-20178

Note: The grandfathered status for shown units in this table reflects the status represented by the applicant on Form OP-REQ1 (Area-wide Applicability Determinations) or Form OP-SUM (Individual Unit Summary) and has not been reviewed to determine validity of the claim of grandfathered status.

Additional Permits By Rule In Effect Prior to 1991
Potentially Applying to This Operating Permit

GENERAL			
Facilities (Emission Limitations)	106	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	124	-	5/12/81, 9/23/82
Facilities (Emission and Distance Limitations)	118	-	7/15/88, 8/11/89
Replacements of Facilities	111	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
Repairs and Maintenance	70	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	80	-	12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
ANALYSIS AND TESTING			
Pilot Plants	76	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	90	-	4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
AGGREGATE AND PAVEMENT			
Portable Rock Crushers	73	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
Bulk Mineral Handling	91	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	108	-	1/8/80, 5/12/81, 9/23/82
Asphalt Concrete Plants	99	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	117	-	1/8/80, 5/12/81, 9/23/82
Asphalt Silos	122	-	7/15/88,8/11/89
COMBUSTION			
Boilers, Heaters, and Other Combustion Devices	7	-	9/23/82, 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
MANUFACTURING			
Semiconductor Manufacturing	115	-	7/15/88, 8/11/89
FEED, FIBER and FERTILIZER FEED			
Grain Handling, Storage and Drying	74	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	88	-	9/23/82
MIXERS, BLENDERS AND PACKAGING			
Chlorine	81	-	7/15/88, 8/11/89
OIL AND GAS			
Salt Water Disposal (Petroleum)	65	-	4/25/86, 7/15/88, 8/11/89
Oil and Gas Production Facilities	66	-	4/25/86, 7/15/88, 8/11/89
Gas Dehydration Units	72	-	1/8/80, 5/12/81, 9/23/82
	63	-	1/11/85, 7/26/85
Gas Oil Separators	73	-	1/8/80, 5/12/81, 9/23/82
	64	-	1/11/85, 7/26/85
Gas-fired Emulsion Treaters	74	-	1/8/80, 5/12/81, 9/23/82
	65	-	1/11/85, 7/26/85
Free Water Knockouts	75	-	1/8/80, 5/12/81, 9/23/82
	66	-	1/11/85, 7/26/85
Tank Battery for Sweet Crude	103	-	1/8/80, 5/12/81, 9/23/82
	87	-	1/11/85,7/26/85
Tank Battery for Sour Crude	104	-	1/8/80, 5/12/81, 9/23/82
	88	-	1/11/85,7/26/85
Tank Battery	93	-	5/5/76

Cryogenic Natural Gas Liquid Separators	105	- 1/8/80, 5/12/81, 9/23/82
	89	- 1/11/85,7/26/85
PLANT OPERATIONS		
Cooling Water Units	8	- 12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	9	- 5/8/72
Refrigeration Systems	103	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	121	- 5/12/81, 9/23/82
Lime Slaking Facilities	121	- 7/15/88, 8/11/89
Aqueous Solutions for Electrolytic and Electroless Processes	41	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	46	- 12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	47	- 5/8/72
PLASTICS, FIBERGLASS AND RUBBER		
Thermoset Resin Facilities	113	- 4/25/86, 7/15/88, 8/11/89
Conveyance and Storage of Plastic and Rubber Material	27	- 4/25/86, 7/15/88, 8/11/89
Equipment for Mixing Plastic and Rubber (with solvent)	48	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	54	- 9/23/82
Equipment for Mixing Plastic and Rubber (no solvent)	46	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	52	- 12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	53	- 5/8/72
Fiberglass Reinforced Plastics Manufacturing	115	- 1/8/80, 5/12/81, 9/23/82
SERVICE INDUSTRIES		
Uranium Recovery Facilities	95	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	112	- 1/8/80, 5/12/81, 9/23/82
Ethylene Oxide Sterilizers	89	- 7/15/88, 8/11/89
Printing Presses	13	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	14	- 1/8/80, 5/12/81, 9/23/82
SURFACE COATING		
Surface Coat Facility (Paint Spray Booth)	75	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	89	- 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
Automobile Restoration Facility	116	- 4/25/86, 7/15/88, 8/11/89
SURFACE PREPARATION		
Dry Abrasive Cleaning	102	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	120	- 5/12/81, 9/23/82
Degreasing Units	107	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	125	- 9/23/82
TANKS, STORAGE AND LOADING		
Organic and Inorganic Liquid Loading and Unloading	51	- 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	57	- 12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	58	- 5/8/72

Organic Liquid Loading and Unloading			
	53	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	60	-	12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	61	-	5/8/72
Hydrochloric Acid	78	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	94	-	1/11/80, 5/12/81, 9/23/82
Acid Storage	14	-	1/11/85, 7/26/85
	15	-	12/1/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	16	-	05/08/1972
Pressurized Tanks or Tanks Vented to a Firebox	82	-	7/26/85, 4/25/86, 7/15/88, 8/11/89
	98	-	1/8/80, 5/12/81, 9/23/82
Pressurized Tanks or Tanks Vented to Control	83	-	7/26/85, 4/25/86, 7/15/88, 8/11/89
	99	-	1/8/80, 5/12/81, 9/23/82
LPG Storage Containers	87	-	9/17/73, 4/4/75, 5/5/76
Anhydrous Ammonia Storage	84	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	100	-	1/8/80, 5/12/81, 9/23/82
Storage Tank and Change of Service	86	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	102	-	1/8/80, 5/12/81, 9/23/82

THERMAL CONTROL DEVICES

Dual Chamber Incinerators	2	-	5/8/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82 7/26/85, 4/25/86, 7/15/88, 8/11/89
Flares	80	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	96	-	1/8/80, 5/12/81, 9/23/82
Direct Flame Incinerators	88	-	7/15/88, 8/11/89
Pathological Waste Incinerators	90	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	106	-	1/8/80, 5/12/81, 9/23/82
Heat Cleaning Devices	87	-	7/15/88, 8/11/89

TURBINES AND ENGINES

Stationary Engines and Turbines	6	-	1/8/80, 5/12/81, 9/23/82, 1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
Gas Turbines	82	-	12/1/72, 5/8/72, 9/17/73, 4/4/75, 5/5/76

WASTE PROCESS AND REMEDIATION

Water and Wastewater Treatment	61	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	69	-	12/1/72, 5/8/72, 9/17/73, 4/4/75, 5/5/76, 1/8/80, 5/12/81, 9/23/82
	70	-	5/8/72
Water and Soil Remediation	68	-	7/15/88, 8/11/89
Municipal Solid Waste Landfill/Transfer	110	-	1/11/85, 7/26/85, 4/25/86, 7/15/88, 8/11/89
	129	-	9/23/82

APPENDIX A

ACRONYM LIST

The following abbreviations or acronyms may be used in this permit:

30 TAC Chapter 112	Title 30 Texas Administrative Code Chapter 112
40 CFR Part 60, Appendix A	Title 40 Code of Federal Regulations Part 60, Appendix A
ACFM	actual cubic feet per minute
AMOC	alternate means of control
ARP	Acid Rain Program
ASTM	American Society of Testing and Materials
B/PA	Beaumont/Port Arthur (nonattainment area)
CAM	Compliance Assurance Monitoring
CD	control device
COMS	continuous opacity monitoring system
CVS	closed-vent system
D/FW	Dallas/Fort Worth (nonattainment area)
DR	Designated Representative
ElP	El Paso (nonattainment area)
EP	emission point
EPA	U.S. Environmental Protection Agency
EU	emission unit
FCAA Amendments	Federal Clean Air Act Amendments
FOP	federal operating permit
GF	grandfathered
gr/100 scf	grains per 100 standard cubic feet
HAP	hazardous air pollutant
H/G	Houston/Galveston (nonattainment area)
H_2S	hydrogen sulfide
ID No.	identification number
lb/hr	pound(s) per hour
MMBtu/hr	Million British thermal units per hour
MRRT	monitoring, recordkeeping, reporting, and testing
NA	nonattainment
N/A	not applicable
NADB	National Allowance Data Base
NO_x	nitrogen oxides
NSPS	New Source Performance Standard (40 CFR Part 60)
NSR	New Source Review
ORIS	Office of Regulatory Information Systems
Pb	lead
PBR	Permit By Rule
PM	particulate matter
ppmv	parts per million by volume
PSD	prevention of significant deterioration
RO	Responsible Official
SO_2	sulfur dioxide
TCEQ	Texas Commission on Environmental Quality
TSP	total suspended particulate
TVP	true vapor pressure
U.S.C.	United States Code
VOC	volatile organic compound

APPENDIX B

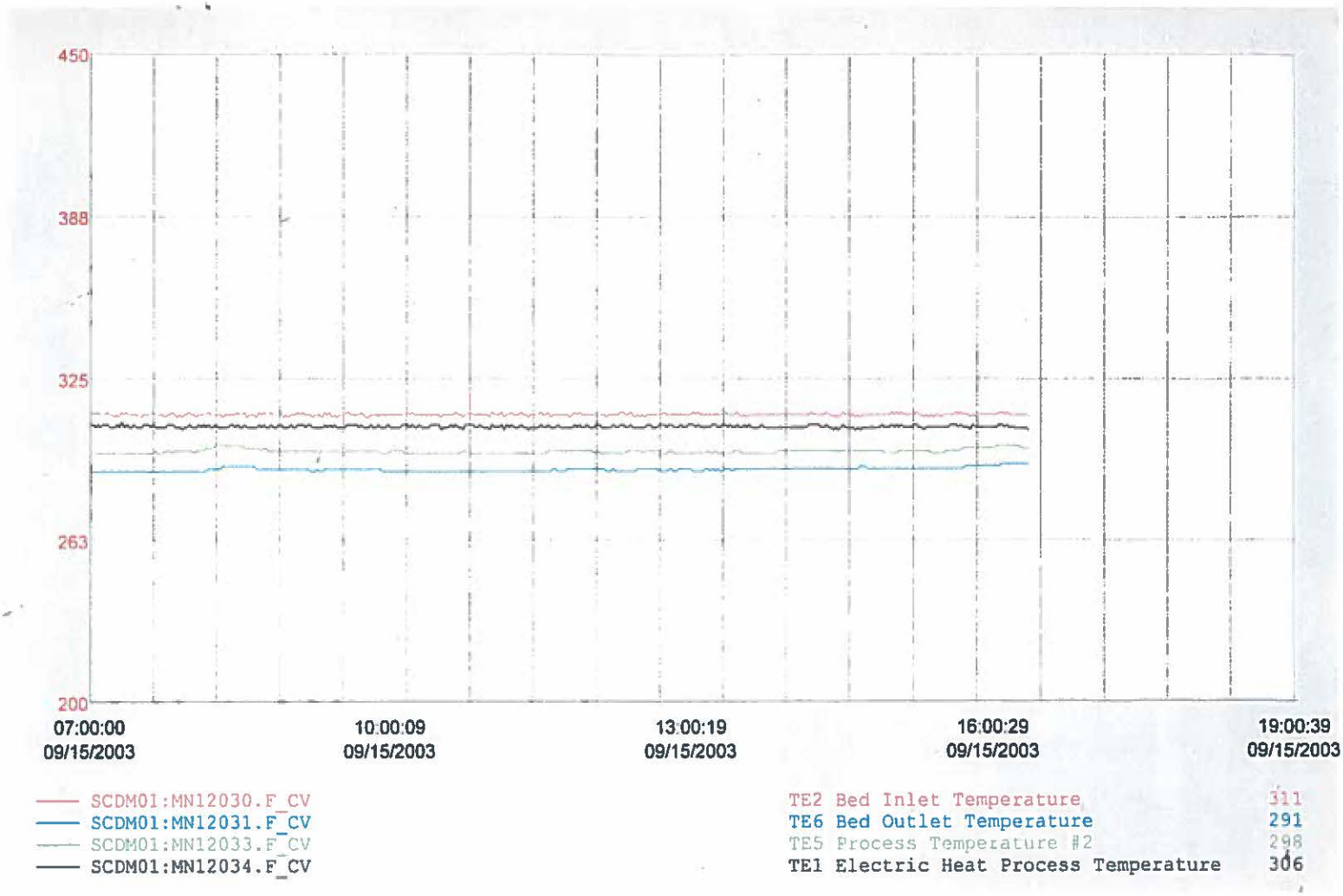
EAST AND WEST ABATOR DATA

GAS CHROMATOGRAPHY RUN SUMMARY
ETHICON, INC.
SEPTEMBER 15, 2003

Chromatogram	Channel A (outlet)	Channel B (inlet)
ETO00001	Calibration set-up	Calibration set-up
ETO00002	Calibration set-up	Calibration set-up
ETO00003	Calibration set-up	Calibration set-up
ETO00004	Calibration set-up	Calibration set-up
ETO00005	Calibration set-up	Calibration set-up
ETO00006	Calibration set-up	Calibration set-up
ETQ00007	1.01 ppm Low Cal	98.1 ppm Low Cal
ETO00008	1.02 ppm Low Cal	98.5 ppm Low Cal
ETO00009	1.01 ppm Low Cal	98.2 ppm Low Cal
ETO00010	1.01 ppm Low Cal	98.8 ppm Low Cal
ETO00011	1.01 ppm Low Cal	98.4 ppm Low Cal
ETO00012	5.21 ppm Mid Cal	2,129 ppm Mid Cal
ETO00013	5.15 ppm Mid Cal	2,130 ppm Mid Cal
ETO00014	5.13 ppm Mid Cal	2,131 ppm Mid Cal
ETO00015	10.12 ppm High Cal	5,020 ppm High Cal
ETO00016	10.12 ppm High Cal	5,023 ppm High Cal
ETO00017	10.15 ppm High Cal	5,023 ppm High Cal
ETO00018	<100 ppb West Abator Run 0	14 ppm West Abator-Preliminary
ETO00019	<100 ppb West Abator Run 1	152 ppm West Abator
ETO00022	<100 ppb West Abator Run 1	151 ppm West Abator
ETO00021	<100 ppb West Abator Run 1	153 ppm West Abator
ETO00022	<100 ppb West Abator Run 2	191 ppm West Abator
ETO00023	<100 ppb West Abator Run 2	188 ppm West Abator
ETO00024	<100 ppb West Abator Run 2	190 ppm West Abator
ETO00025	<100 ppb West Abator Run 2	190 ppm West Abator
ETO00026	<100 ppb West Abator Run 3	160 ppm West Abator
ETO00027	<100 ppb West Abator Run 3	162 ppm West Abator
ETO00028	<100 ppb West Abator Run 3	165 ppm West Abator
ETO00029	1.01 ppm Low Cal	100.3 ppm Low Cal
ETO00030	1.02 ppm Low Cal	102.0 ppm Low Cal
ETO00031	1.02 ppm Low Cal	101.0 ppm Low Cal
ETO00032	5.23 ppm Mid Cal	2,129 ppm Mid Cal
ETO00033	5.16 ppm Mid Cal	2,129 ppm Mid Cal
ETO00034	5.34 ppm Mid Cal	2,128 ppm Mid Cal
ETO00035	10.12 ppm High Cal	5,001 High Cal
ETO00036	10.24 ppm High Cal	5,002 High Cal
ETO00037	10.12 ppm High Cal	5,001 High Cal

GAS CHROMATOGRAPHY RUN SUMMARY
ETHICON, INC.
SEPTEMBER 16, 2003

Chromatogram	Channel A (outlet)	Channel B (inlet)
ETO00038	1.00 ppm Low Cal	101.9 ppm Low Cal
ETO00039	1.01 ppm Low Cal	102.0 ppm Low Cal
ETO00040	1.01 ppm Low Cal	101.0 ppm Low Cal
ETO00041	5.13 ppm Mid Cal	2,129 ppm Mid Cal
ETO00042	5.12 ppm Mid Cal	2,127 ppm Mid Cal
ETO00043	5.12 ppm Mid Cal	2,129 ppm Mid Cal
ETO00044	10.14 ppm High Cal	5,006 ppm High Cal
ETO00045	10.14 ppm High Cal	5,007 ppm High Cal
ETO00046	10.10 ppm High Cal	5,008 ppm High Cal
ETO00047	<100 ppb East Abator Run 1	140 ppm East Abator
ETO00048	<100 ppb East Abator Run 1	132 ppm East Abator
ETO00049	<100 ppb East Abator Run 1	130 ppm East Abator
ETO00050	<100 ppb East Abator Run 2	211 ppm East Abator
ETO00051	<100 ppb East Abator Run 2	210 ppm East Abator
ETO00052	<100 ppb Abator Run 2	208 ppm East Abator
ETO00053	<100 ppb East Abator Run 3	142 ppm East Abator
ETO00054	<100 ppb East Abator Run 3	140 ppm East Abator
ETO00055	<100 ppb East Abator Run 3	140 ppm East Abator
ETO00056		35 ppm Bag 1 East Scrubber - O
ETO00057		34 ppm Bag 1 East Scrubber - O
ETO00058		19 ppm Bag 2 East Scrubber - O
ETO00059		19 ppm Bag 2 East Scrubber - O
ETO00060		9.2 ppm Bag 3 East Scrubber - O
ETO00061		9.1 ppm Bag 3 East Scrubber - O
ETO00062		98 ppm Bag 1 West Scrubber -T
ETO00063		99 ppm Bag 1 West Scrubber –T
ETO00064		67 ppm Bag 2 West Scrubber – T
ETO00065		65 ppm Bag 2 West Scrubber – T
ETO00066		41 ppm Bag 3 West Scrubber – T
ETO00067		42 ppm Bag 3 West Scrubber – T
ETO00068		aborted sample wrong scrubber
ETO00069		aborted sample wrong scrubber
ETO00070		aborted sample wrong scrubber
ETO00071	1.01 ppm Low Cal	101.2 ppm Low Cal
ETO00072	1.00 ppm Low Cal	101.1 ppm Low Cal
ETO00073	1.00 ppm Low Cal	101.3 ppm Low Cal
ETO00074	5.24 ppm Mid Cal	2,119 ppm Mid Cal
ETO00075	5.12 ppm Mid Cal	2,119 ppm Mid Cal
ETO00076	5.14 ppm Mid Cal	2,118 ppm Mid Cal
ETO00077	10.12 ppm High Cal	5,002 ppm High Cal
ETO00078	10.31 ppm High Cal	5,000 ppm High Cal
ETO00079	10.23 ppm High Cal	5,001 ppm High Cal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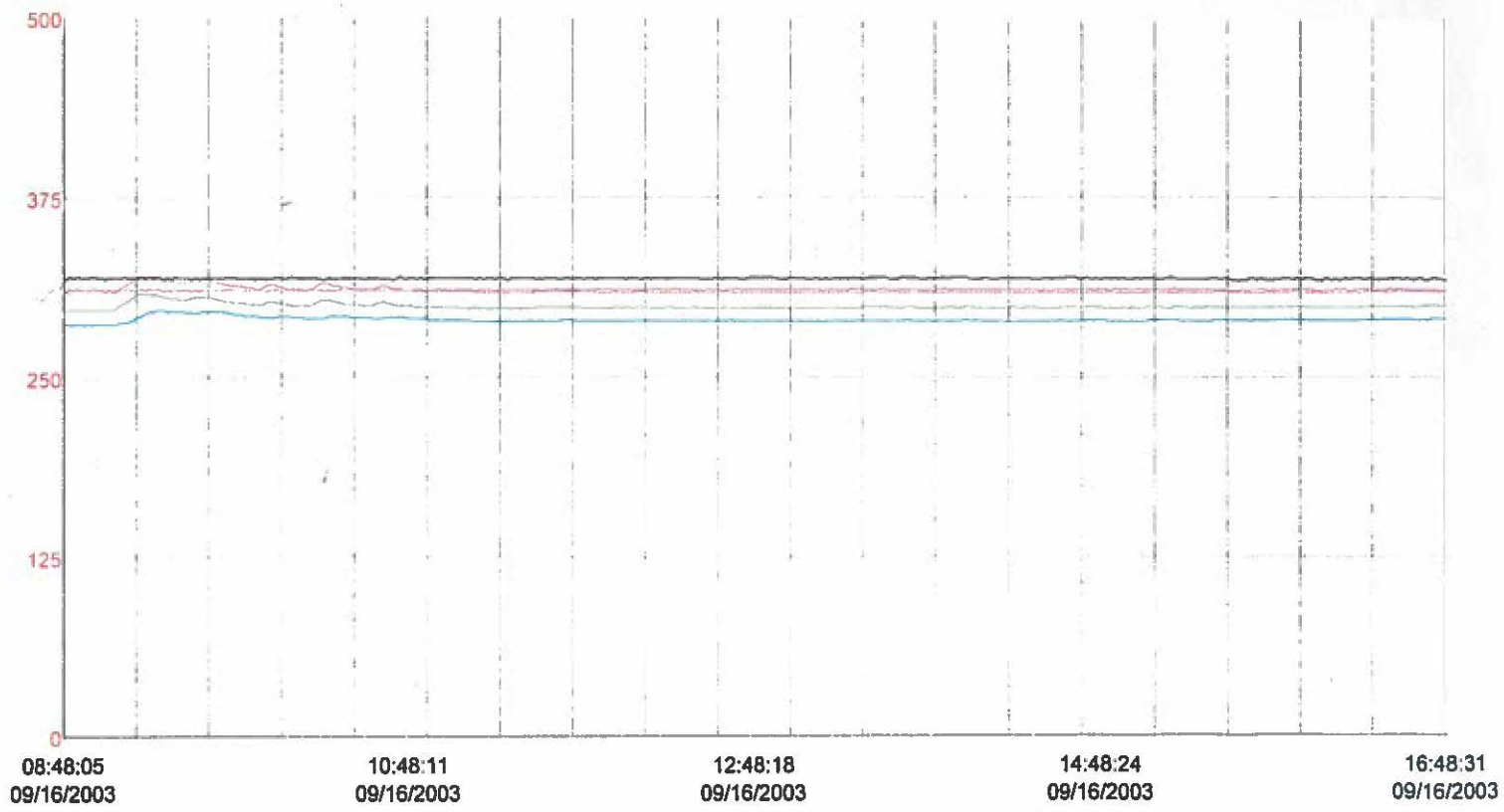
09/15/2003
19:00:39
09/15/2003
SCDM01:MN12030.F_CV
SCDM01:MN12031.F_CV
SCDM01:MN12033.F_CV
SCDM01:MN12034.F_CV
TE2 Bed Inlet Temperature 311
TE6 Bed Outlet Temperature 291
TE5 Process Temperature #2 298
TE1 Electric Heat Process Temperature 306



SCDM01:LN12030.F_CV	TE2 Bed Inlet Temperature	311
SCDM01:LN12031.F_CV	TE6 Bed Outlet Temperature	289
SCDM01:LN12032.F_CV	TE4 Process Temperature #1	309
SCDM01:LN12033.F_CV	TE5 Process Temperature #2	298
SCDM01:LN12034.F_CV	TE1 Electric Heat Process Temperature	319

Data File C:\HPCHEM\3\DATA\ECON03\ETO00007.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.88237e4	5.37738e-5	1.01222		EtO

Totals : 1.01222

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00008.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.90318e4	5.37759e-5	1.02345		EtO

Totals : 1.02345

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00009.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.88250e4	5.37738e-5	1.01229		EtO
Totals :				1.01229		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00010.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.580	VV	1.88242e4	5.37738e-5	1.01225		EtO
Totals :				1.01225		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00011.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.88194e4	5.37737e-5	1.01199		EtO
Totals :				1.01199		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00012.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	9.66427e4	5.39309e-5	5.21203		EtO
Totals :				5.21203		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00013.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	9.54676e4	5.39304e-5	5.14861		EtO
Totals :				5.14861		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00014.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	9.51639e4	5.39303-5	5.13222		EtO
Totals :				5.13222		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00015.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.87606e5	5.39493e-5	10.12122		EtO

Totals : 10.12122

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00016.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.87627e5	5.39493e-5	10.12234		EtO
Totals :				10.12234		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00017.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.88139e5	5.39494e-5	10.15000		EtO

Totals : 10.15000

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00018.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.585	VV	1.88985e3	5.20253e-5	0.09832		EtO
Totals :				0.09832		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00019.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.90542e3	5.20411e-5	0.09916		EtO

Totals : 0.09916

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00020.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.83037e3	5.19621e-5	0.09511		EtO
Totals :				0.09511		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00021.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.64934e3	5.17418e-5	0.08534		EtO
Totals :				0.08534		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00022.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.580	VV	1.70697e3	5.18170e-5	0.08845		EtO
Totals :				0.08845		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00023.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.61191e3	5.16901e-5	0.08332		EtO

Totals : 0.08332

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00024.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.580	VV	1.83834e3	5.19708e-5	0.09554		EtO
Totals :				0.09554		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00025.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.76015e3	5.18820e-5	0.09132		EtO

Totals : 0.09132

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00026.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.75829e3	5.18798e-5	0.09122		EtO

Totals : 0.09122

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00027.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.588	VV	1.79887e3	5.19270e-5	0.09341		EtO
Totals :				0.09341		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00028.D

Signal 1: ADC1 A, ADC1 CHANNEL A

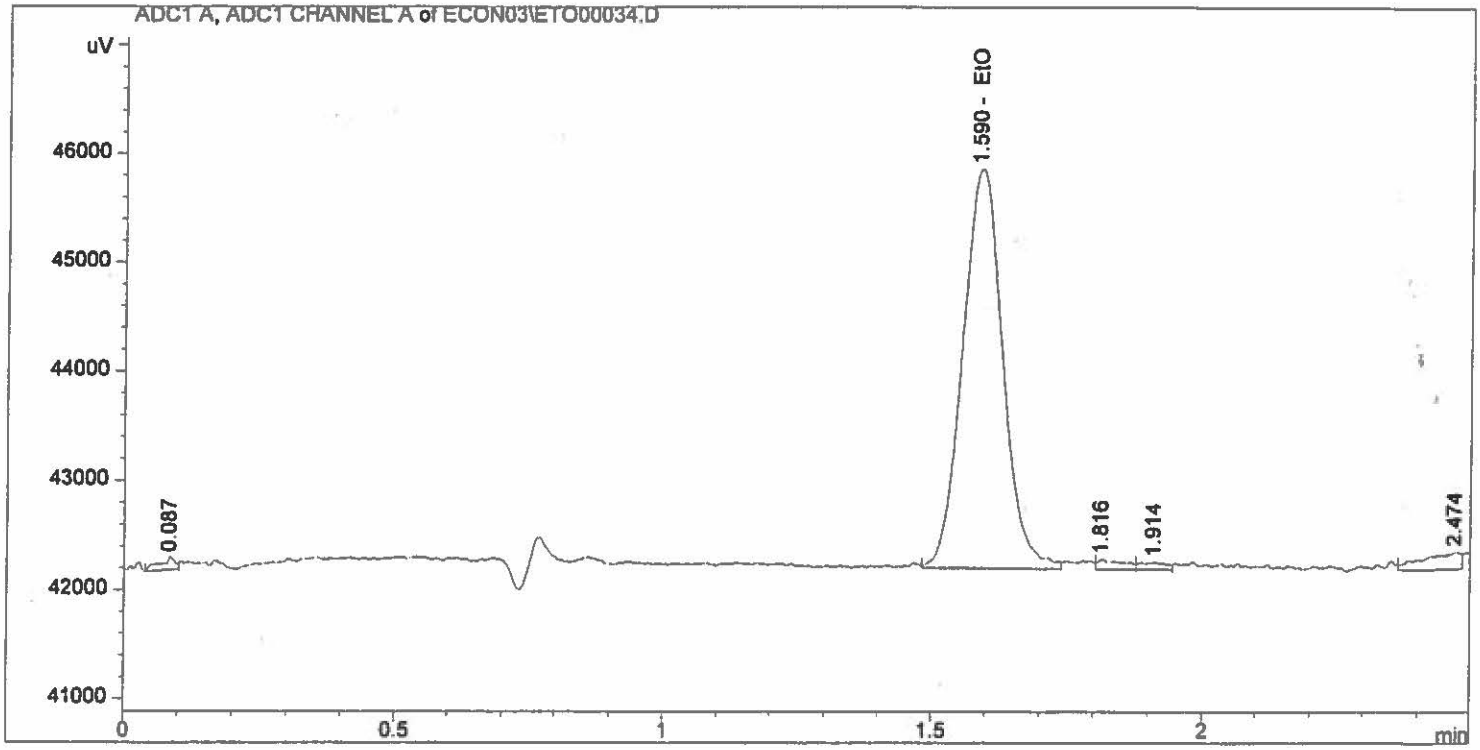
RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.88818e3	5.20235e-5	0.09823		EtO
Totals :				0.09823		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00029D

Injection Date	: 9/15/03 3:44:19 PM	Seq. Line	: -
Sample Name	:	Vial	: -
Acq. Operator	: Becvar/Barreda	Inj	: -
		Inj Volume	: Manually

Acq. Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/10/03 2:08:14 PM by Becvar/Barreda
Analysis Method : C:\HPCHEM\3\METHODS\ECONEX03.M
Last changed : 9/23/03 1:26:11 PM by Becvar/Barreda
(modified after loading)
HYDROCARBON SPECIATION
50@3/20/340@1
15mx0.53mmid rtx-1



External Standard Report

Sorted by Signal
Calib. Data Modified : Tuesday, September 23, 1903 1:23:51 PM
Multiplier : 1.000000
Dilution : 1.000000
Uncalibrated Peaks : compound name not specified

Data File C:\HPCHEM\3\DATA\ECON03\ETO00029D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.590	VV	1.87844e4	5.37734e-5	1.01010		EtO

Totals : 1.01010

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00030.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.90282e4	5.37759e-5	1.02326		EtO
Totals :				1.02326		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00031.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.90460e4	5.37761e-5	1.02422		EtO

Totals : 1.02422

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00032.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	9.70187e4	5.39311e-5	5.23232		EtO
Totals :				5.23232		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00033.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	9.57511e4	5.39306e-5	5.16391		EtO

Totals : 5.16391

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00034.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	9.90693e4	5.39318e-5	5.34299		EtO
Totals :				5.34299		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00035.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.631	VV	1.89642e5	5.39496e-5	10.23111		EtO

Totals : 10.23111

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00036.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.600	VV	1.89848e5	5.39496e-5	10.24223		EtO

Totals : 10.24223

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00037.D

Signal 1: ADC1 A, ADC1 CHANNEL A

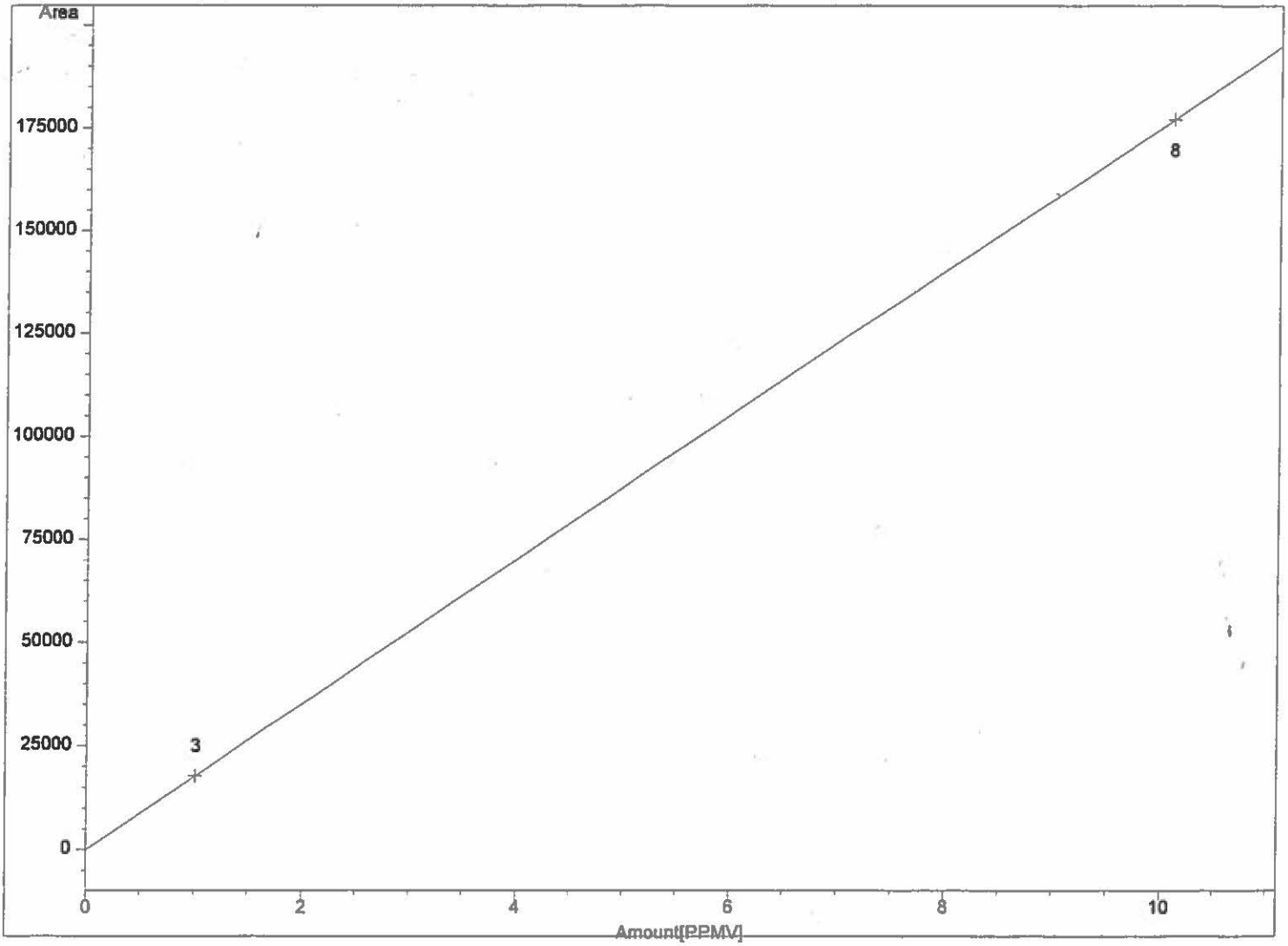
RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.598	VV	1.87604e5	5.39493e-5	10.12112		EtO

Totals : 10.12112

*** End of Report ***

Method C:\HPCHEM\3\METHODS\ECONEX03.M

Calibration Curve



EtO at exp. RT: 1.645
ADC1 A, ADC1 CHANNEL A
Correlation: 1.00000
Residual Std. Dev.: 52.46602
Formula: y = mx + b
m: 17552.87695
b: 35.00136
x: Amount
y: Area

Data File C:\HPCHEM\3\DATA\ECON03\ETO00038.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.76641e4	5.68578e-5	1.00434		EtO

Totals : 1.00434

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00039D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.77380e4	5.68583e-5	1.00855		EtO
Totals :				1.00855		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00040.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.585	VV	1.78291e4	5.68589e-5	1.01374		EtO

Totals : 1.01374

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00041.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.585	VV	9.00007e4	5.69486e-5	5.12541		EtO

Totals : 5.12541

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00042.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	8.99642e4	5.69486e-5	5.12333		EtO

Totals : 5.12333

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00043.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	8.99615e4	5.69486e-5	5.12318		EtO

Totals : 5.12318

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00044.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.77941e5	5.69595e-5	10.13546		EtO

Totals : 10.13546

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00045.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.78039e5	5.69595e-5	10.14100		EtO

Totals : 10.14100

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00046.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.77354e5	5.69595e-5	10.10201		EtO

Totals : 10.10201

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00047.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.56614e3	5.56975e-5	0.08723		EtO
Totals :				0.08723		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00048.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.60476e3	5.57281e-5	0.08943		EtO

Totals : 0.08943

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00049.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.580	VV	1.64127e3	5.57558e-5	0.09151		EtO

Totals : 0.09151

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00050.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.63811e3	5.57534e-5	0.09133		EtO
Totals :				0.09133		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00051.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.67462e3	5.57800e-5	0.09341		EtO
Totals :				0.09341		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00052.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.78994e3	5.58567e-5	0.09998		EtO

Totals : 0.09998

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00053.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.583	VV	1.56860e3	5.56995e-5	0.08737		EtO

Totals : 0.08737

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00054.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.583	VV	1.60546e3	5.57287e-5	0.08947		EtO
Totals :				0.08947		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00055.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.60089e3	5.57251e-5	0.08921		EtO

Totals : 0.08921

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00071.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.78008e4	5.68587e-5	1.01213		EtO

Totals : 1.01213

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00072.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	1.76179e4	5.68575e-5	1.00171		EtO
Totals :				1.00171		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00073.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.583	VV	1.75917e4	5.68574e-5	1.00022		EtO

Totals : 1.00022

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00074.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.580	VV	9.20584e4	5.69491e-5	5.24264		EtO
Totals :				5.24264		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00075.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	8.99347e4	5.69485e-5	5.12165		EtO
Totals :				5.12165		

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00076.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.584	VV	9.03133e4	5.69486e-5	5.14322		EtO

Totals : 5.14322

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00077.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.583	VV	1.79275e5	5.69596e-5	10.21143		EtO

Totals : 10.21143

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00078.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.581	VV	1.81036e5	5.69597e-5	10.31174		EtO

Totals : 10.31174

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00079.D

Signal 1: ADC1 A, ADC1 CHANNEL A

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.582	VV	1.79638e5	5.69596e-5	10.23211		EtO

Totals : 10.23211

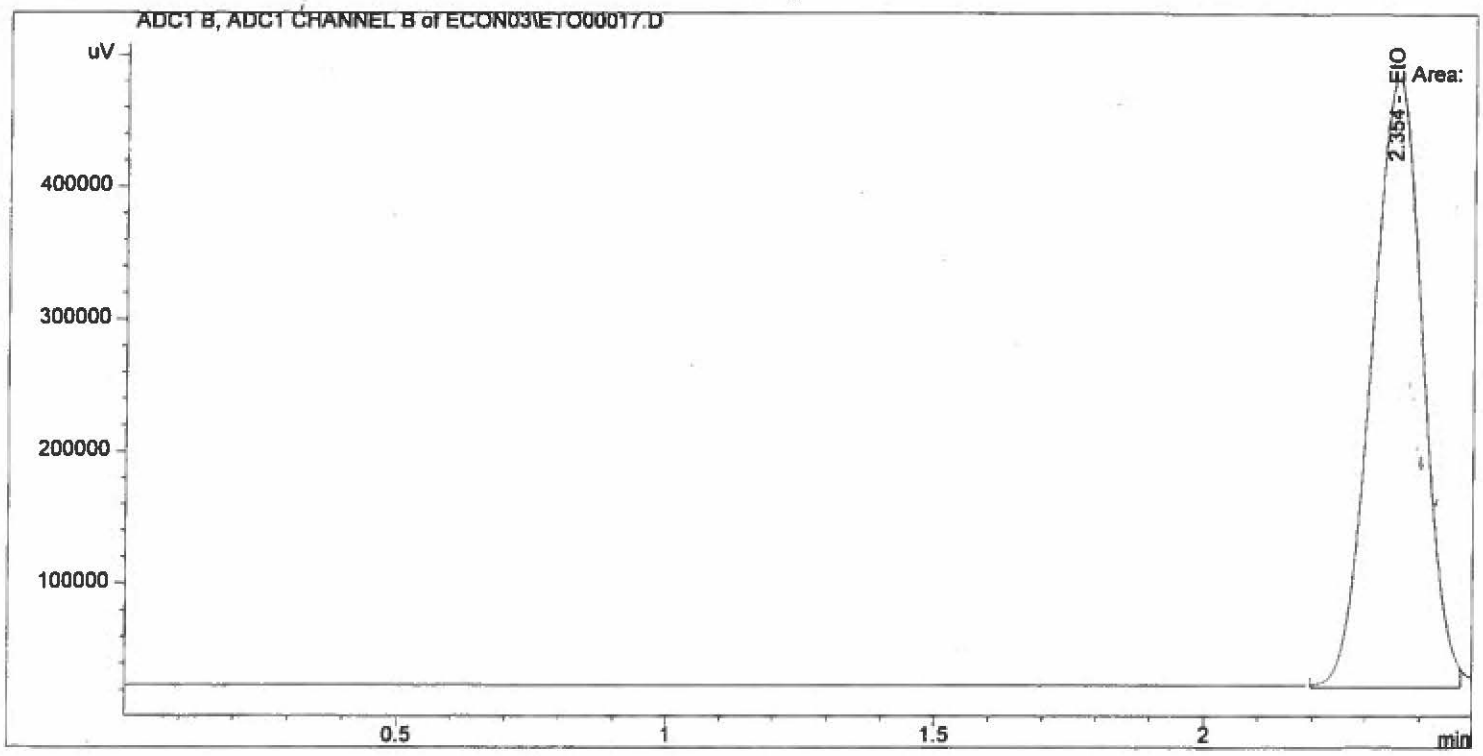
*** End of Report ***

Intercept	Area	Concentration	notes		
				2	Scrubber O
				3	Scrubber O
				1	Scrubber O
				1	Scrubber O
					Scrubber O
					Scrubber O
5393.68359	155842	98.1	low cal	2	Scrubber T
5393.68359	156456	98.5	low cal	3	Scrubber T
5393.68359	155995	98.2	low cal	2	Scrubber T
5393.68359	156916	98.8	low cal	4	Scribber T
5393.68359	156302	98.4	low cal	3	Scrubber T
5393.68359	3270477	2129	mid cal	0	Scrubber T
5393.68359	3272011	2130	mid cal		aborted sample
5393.68359	3273544	2131	mid cal		aborted sample
5393.68359	7704181	5020	high cal		aborted sample
5393.68359	7708782	5023	high cal	2	low cal
5393.68359	3022140	5023	high cal	1	low cal
5393.68359	2692.588	14.3	West Abator	3	low cal
5393.68359	238964	152.3	West Abator	9	mid cal
5393.68359	237124	151.1	West Abator	9	mid cal
5393.68359	240345	153.2	West Abator	8	mid cal
5393.68359	298929	191.4	West Abator	2	high cal
5393.68359	294175	188.3	West Abator	0	high cal
5393.68359	296935	190.1	West Abator	1	high cal
5393.68359	297396	190.4	West Abator		
5393.68359	251233	160.3	West Abator		
5393.68359	253841	162.0	West Abator		
5393.68359	258441	165.0	West Abator		
5393.68359	159216	100.3	low cal	.9	low cal
5393.68359	158909	100.1	low cal	.5	low cal
5393.68359	161343	101.7	low cal	8	mid cal
5393.68359	3270477	2129	mid cal	9	mid cal
5393.68359	3270477	2129	mid cal	5	high cal
5393.68359	3270220	2129	mid cal	3	high cal
5393.68359	7675043	5001	high cal	.2	Scrubber T-MT
5393.68359	7676576	5002	high cal	.5	Scrubber T-MT
5393.68359	7675043	5001	high cal	1	Scrubber T-MT
				1	Scrubber T-MT
				3	Scrubber T-MT
				4	Scrubber T-MT
5884.5459	161782	101.9	low cal	.3	Scrubber U
5884.5459	161983	102.0	low cal	.2	Scrubber U
5884.5459	160405	101.0	low cal	2	Scrubber U
5884.5459	3263047	2129	mid cal	2	Scrubber U
5884.5459	3259988	2127	mid cal	3	Scrubber U
5884.5459	3262760	2129	mid cal	4	Scrubber U
5884.5459	7664578	5006	high cal	3	low cal
5884.5459	7666107	5007	high cal	5	low cal
5884.5459	7667637	5008	high cal	29	mid cal
5884.5459	220377	140.2	East Abator	28	mid cal
5884.5459	207985	132.1	East Abator	01	high cal
5884.5459	204925	130.1	East Abator	05	high cal
5884.5459	329056	211.3	East Abator		
5884.5459	327470	210.2	East Abator		
5884.5459	324563	208.3	East Abator		
5884.5459	223743	142.4	East Abator		
5884.5459	220377	140.2	East Abator		
5884.5459	220224	140.1	East Abator		

Data File C:\HPCHEM\3\DATA\ECON03\ETO00017.D OK

Injection Date	: 9/15/03 11:06:30 AM	Seq. Line	: -
Sample Name	:	Vial	: -
Acq. Operator	: Becvar/Barreda	Inj	: -
		Inj Volume	: Manually

Acq. Method : C:\HPCHEM\3\METHODS\ECONEX03.M
Last changed : 9/10/03 2:24:12 PM by Becvar/Barreda
Analysis Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/22/03 2:48:08 PM by Becvar/Barreda
(modified after loading)



External Standard Report

Sorted by Signal
Calib. Data Modified : Monday, September 22, 1903 2:39:37 PM
Multiplier : 1.000000
Dilution : 1.000000
Uncalibrated Peaks : compound name not specified

Data File C:\HPCHEM\3\DATA\ECON03\ETO00017.D

OK

Signal 1: ADC1 B, ADC1 CHANNEL B

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
2.354	MM	3.02214e6	1.66202e-3	5022.85840		EtO

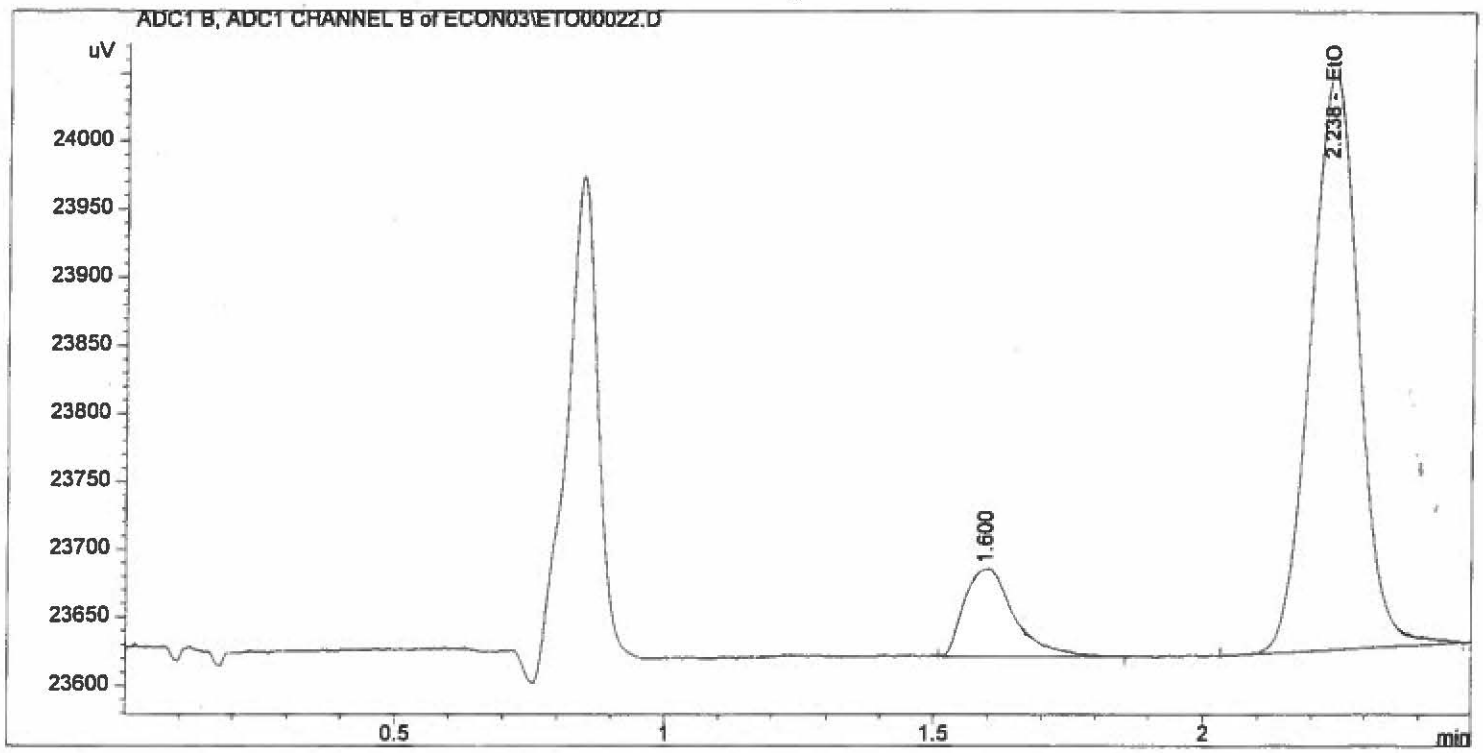
Totals : 5022.85840

*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00018.D

Injection Date	: 9/15/03 1:38:00 PM	Seq. Line	: -
Sample Name	:	Vial	: -
Acq. Operator	: Becvar/Barreda	Inj	: -
		Inj Volume	: Manually

Acq. Method	: C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed	: 9/10/03 2:08:14 PM by Becvar/Barreda
Analysis Method	: C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed	: 9/22/03 2:52:02 PM by Becvar/Barreda (modified after loading)



External Standard Report

Sorted by Signal

Calib. Data Modified	:	Monday, September 22, 1903 2:51:19 PM
Multiplier	:	1.000000
Dilution	:	1.000000
Uncalibrated Peaks	:	compound name not specified

Da File C:\HPCHEM\3\DATA\ECON03\ETO00018.D

Signal 1: ADC1 B, ADC1 CHANNEL B

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.600	VV	412.91803	0.00000	0.00000		?
2.238	PBA	2692.58813	5.30059e-3	14.27231		EtO

Totals : 14.27231

==========

*** End of Report ***

Method C:\HPCHEM\3\METHODS\ECONIN03.M ECIN03A

Calibration Table

ETO-A

Calib. Data Modified	:	Monday, September 22, 1903 3:10:08 PM
Calculate	:	External Standard
Based on	:	Peak Areas
Rel. Reference Window	:	10.000 %
Abs. Reference Window	:	0.300 min
Rel. Non-ref. Window	:	5.000 %
Abs. Non-ref. Window	:	0.100 min
Default Multiplier	:	1.000000 (if not set in sample table)
Default Dilution	:	1.000000 (if not set in sample table)
Default Sample Amount	:	0.000000 (if not set in sample table)
Calculate Uncal. Peaks	:	compound name not specified
Partial Calibration	:	Yes, identified peaks are recalibrated
Correct All RTs	:	No, only for identified peaks
Curve Type	:	Linear
Origin	:	Included
Weight	:	Equal

Recalibration Settings:
- Average Response : Average all calibrations
- Average RT : Floating Average New 75%

Calibration Report Options :
- Printout of recalibrations within a sequence:
  - Calibration Table after Recalibration
  - Normal Report after Recalibration
- If the sequence is done with bracketing:
  - Results of first cycle (ending previous bracket)

Signal 1 : ADC1 B, ADC1 CHANNEL B

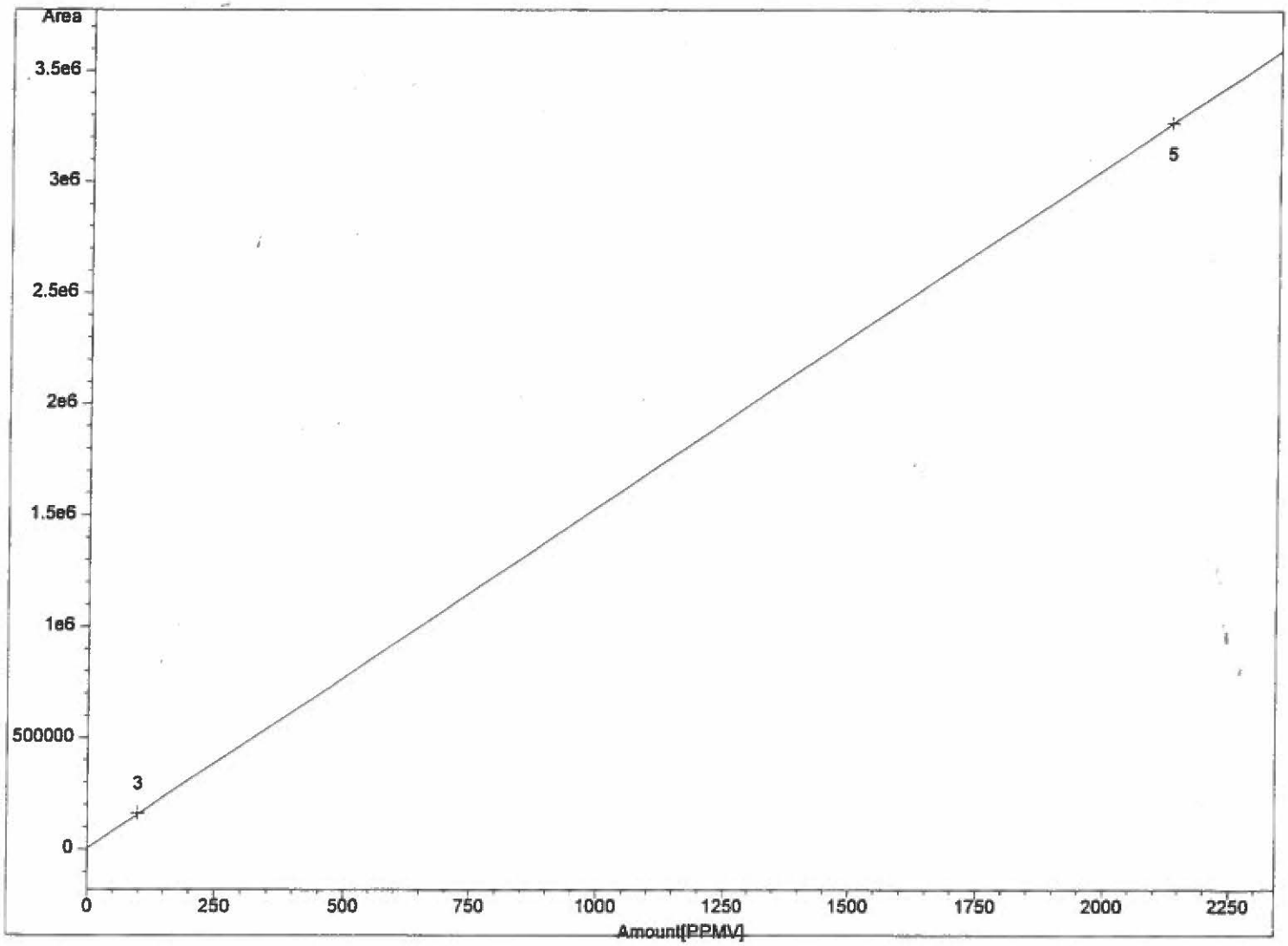
RT [min]	Sig	Lvl	Amount [PPMV]	Area	Amt/Area	Ref	Grp	Name
1.636	1	3	98.00000	1.61343e5	6.07403e-4			EtO
		5	2129.00000	3.27022e6	6.51027e-4			

Method C:\HPCHEM\3\METHODS\ECONIN03.M

==========

Calibration Curve

==========



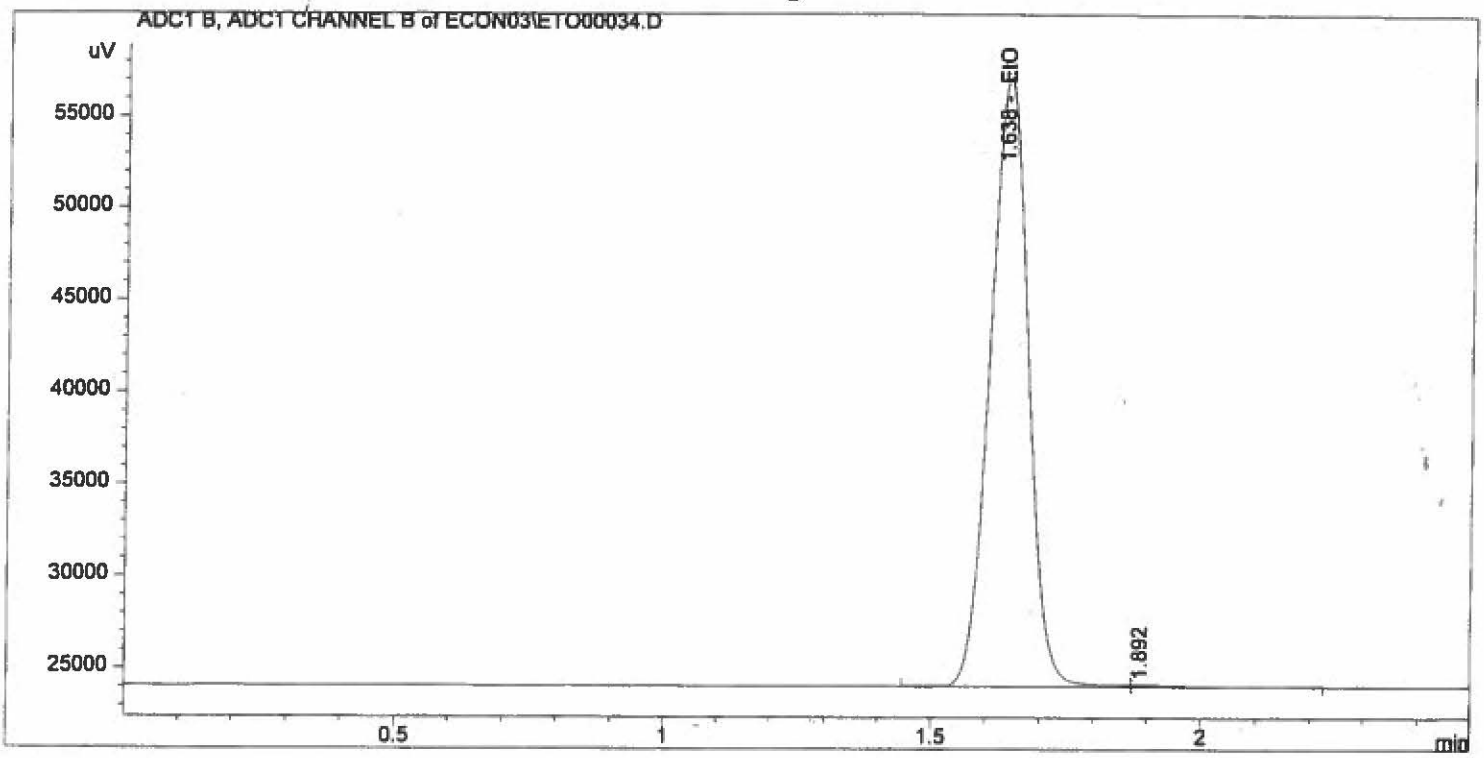
EtO at exp. RT: 1.636
ADC1 B, ADC1 CHANNEL B
Correlation: 1.00000
Residual Std. Dev.: 7818.35011
Formula: y = mx + b
m: 1533.62305
b: 5393.68359
x: Amount
y: Area

==========

Data File C:\HPCHEM\3\DATA\ECON03\ETO00031.D

Injection Date	: 9/15/03 3:44:19 PM	Seq. Line	: -
Sample Name	:	Vial	: -
Acq. Operator	: Becvar/Barreda	Inj	: -
		Inj Volume	: Manually

Acq. Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/10/03 2:08:14 PM by Becvar/Barreda
Analysis Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/22/03 3:14:26 PM by Becvar/Barreda
(modified after loading)



External Standard Report

Sorted by Signal
Calib. Data Modified : Monday, September 22, 1903 3:10:08 PM
Multiplier : 1.000000
Dilution : 1.000000
Uncalibrated Peaks : compound name not specified

Data File C:\HPCHEM\3\DATA\ECON03\ETO00031.D

Signal 1: ADC1 B, ADC1 CHANNEL B

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.638	VV	1.61343e5	6.30253e-4	101.68666		EtO
1.892	VV	735.29828	0.00000	0.00000		?

Totals : 101.68666

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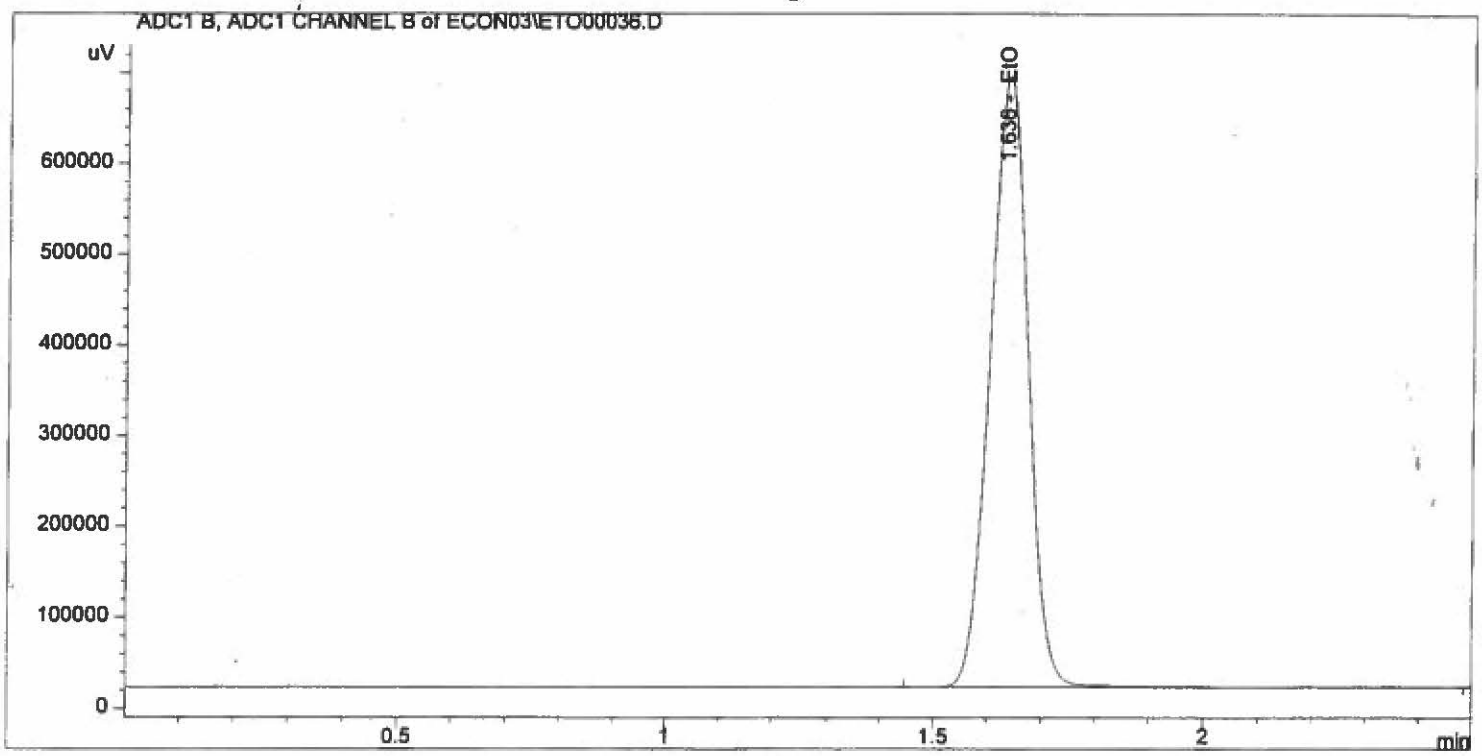
*** End of Report ***

Data File C:\HPCHEM\3\DATA\ECON03\ETO00034.D

Injection Date	: 9/15/03 3:51:15 PM	Seq. Line :	-
Sample Name	:	Vial :	-
Acq. Operator	: Becvar/Barreda	Inj :	-
		Inj Volume :	Manually

Acq. Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/10/03 2:08:14 PM by Becvar/Barreda
Analysis Method : C:\HPCHEM\3\METHODS\ECONIN03.M
Last changed : 9/22/03 3:12:51 PM by Becvar/Barreda
(modified after loading)



External Standard Report

Sorted by Signal
Calib. Data Modified : Monday, September 22, 1903 3:10:08 PM
Multiplier : 1.000000
Dilution : 1.000000
Uncalibrated Peaks : compound name not specified

Data File C:\HPCHEM\3\DATA\ECON03\ETO00034.D

Signal 1: ADC1 B, ADC1 CHANNEL B

RT [min]	Type	Area [uV*s]	Amt/Area	Amount [PPMV]	Grp	Name
1.636	PBA	3.27022e6	6.50975e-4	2128.83032		EtO

Totals : 2128.83032

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*** End of Report ***